FINLAND CHINA TRADE

What factors have been driving the trade

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Tiivistelmä – Referat – Abstract

The Master's thesis is about Finland China trade and what factors have been driving it. The research question of the thesis is to see what the leading factors have been to drive the trade and its growth between China and Finland.

This is done both as a literature study of the subject as well as an econometric study based on the economic gravitational model for trade. The investigation is done on factor like macroeconomic factors of like GDP of the countries, as well as politics, history, trade agreements, bilateral relations and structure in the trade between the two countries.

The main findings in the thesis is that GDP growth of Finland and China effects strongly positively the trade floe between the countries. Additionally, concerning the access of China into the WTO it had statistically a positive effect on the Chinese exports to Finland, while Finnish exports to China did not have the same positive effect, thanks to Chinese access into WTO.

Concerning the progresses of trade between the countries it can be seen from first being part just of bilateral trade relations between the two countries of different goods, to more develop into investment of booth countries in each other's.

Regarding the trade of goods, that of exports form Finnish has been more shift from before being exports of higher technology goods of electronic machines and other manufactured goods and machines to more a mix of raw material exports as well as high technology goods. In case of Chinese exports, they have been evolving from low level of goods like textiles and simple manufactured good in 1990s to current day of exports of higher level of especially electrical machinery and machinery and mechanical appliances being of importance, while textiles and simple manufactured goods lost shares in exports.

Finland and China have had kind of good political relations with each other's, by Finland begging its political relations with recognizing China in 1950 and having opening embassy in Beijing in the year of 1952. Furthermore, Finland has had more a policy of most non-interference by its higher political officials and companies into Chinas internal more sensitive affairs, and more promoting good trade and political relations between the two countries.

Avainsanat – Nyckelord – Keywords
China, Finland, Trade, Trade policy, Gravitational model, China Finland relations, Chinese investment, Trade agreements

Säilytyspaikka – Förvaringställe – Where deposited

Muita tietoja – Övriga uppgifter – Additional information

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List of abbreviations

ASEAN	Association of Southeast Asian Nations
EU	European Union
EUR	Euro
FDI	Foreign direct investment
FBCS	Finnish Business Council Shanghai
FTA	Free trade Agreement
GDP	Gross Domestic Production
IPR	Intellectual property right
OBOR	One Belt One Road
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary least square
RMB	Renminbi
UN	United Nations
USA	United States of America
USD	United states Dollar
WTO	World Trade Organization

1. Introduction

This master thesis is about the factors that has been affecting Finnish-China trade. As China is growing in size and importance for the Finnish economy and world economy, it is more important to understand how the trade is affecting between the countries. Additionally, Finland is one of the countries in Europe where the trade with China accounts for a bigger share than on average making it an interesting pair to compare, as it is second to Germany in share of Trade with China of EU countries. China has been becoming also one of the major trading partners to Finland and as such, and it is important to have a look on how the trade relationship has involved as well as what is expected to happen to it in the near future. Additionally, as China is expected to become world's biggest economy in the future it is important to understand how trade between Finland and China, will be affected by the growth of China.

The main findings of this master thesis are that GDP growth has been one or if not the main driving factor for the growth between the trade of the countries. Other factors which directly relate to the growth has been opening up of China to the world, enabling it to be a more integral part of the world's economic system, especially by becoming a member of the WTO of which it befitted a lot of regarding its exports to other countries. Furthermore, other trade agreements and bilateral deals between China and Finland have improved the trade between the countries.

Furthermore, good political relationship between Finland and China, without any major crisis has enabled the trade to go smooth trade relations between the two countries. The relationship on a political level has on the whole-time frame been good as Finland has one of the better relationships with China of all European countries. While still many of the Trade deals are done under EU tariffs and contracts Finland has been able to export a growing share of goods and services into China compared to most of other European Countries.

The trade between the countries can have seen to have different eras of which clear ones are the trade before 1980s, under 1980s and 1990s, the time in 2000s after China's WTO access until to the financial crisis and the time following it until today.

1.1. Research question

The research question of the thesis is to see what the leading factors have been to drive the trade and its growth between China and Finland. This would be an answer both based on macroeconomic factors of like GDP of the countries, as well as politics, trade agreements, relations and structure in the trade between the two countries.

1.2. Aim

The Aim of the thesis is the see what factor have been affecting Finnish China trade, how it has developed over time and what has been the factors driving the increase in trade between the two countries. The aim is done with an econometric study based on gravitation model for trade both for a model between trade flow and GDP as well as a model between trade flow electricity as well as WTO access for China. Furthermore, the paper goes through other political and trade factors like trade agreements between the countries, tariffs and other barriers for trade. It also investigates import and exports between the countries, it structures and development over time.

1.3. Purpose

The purpose of this paper is to analysis what has been the major factors affecting the trade between China and Finland during the last 40 year both through a literature study as well as an econometric study on the topic. The purpose is also to see if there have been some key factors in general that has enabled the trade to grow between the two countries.

1.4. Contribution

The contribution of the thesis is to get more knowledge what the factors have been affecting the Finnish China Trade. As the subject directly related to limited researched the thesis aims to contribute by giving more information on what the factors have been affecting the trade relationship between China and Finland. As the researches limited in general even on Finland China relations it aims to contribute in the trade between the countries both from political and economic views. Furthermore, as Finland has big share of trade with China compared to other countries, it makes a contribution to answer what has led to this. Also, as the subject is narrowed down to only the pair of the two countries there is only done a limited amount of previous studies directly linked to Finnish China trade.

1.5. Methods

The method of the paper is econometric study as well as literature study of previous research in the field from where and analysis and conclusions are made from. In case of the literature the sources include academic papers, general studies about the subject, data for the econometric study, newspapers and other sources, the sources have both been written in English, Finnish and Chinese especially regarding the news part. The papers and sources that have been used are all mostly from the 21-century to more reflect the current situation, and actualities.

The econometric based on the economic model of gravity, with a linear regression models, on the GDP and trade flow as well as electricity consumption and Chinas access to the WTO. In case of the econometric studies of regression analysis, the data is taken from the statistical sources of BP-statists, Finnish Customs database and World bank as well as a dummy variable is made for Chinas WTO access.

1.6 Limitations

The thesis is limited so that it only looks at the primary the period following the opening up of China since 1978 onwards as before that China could be seen to be a more closed economy as well as not integrated to the global economic system. Furthermore, it only looks on the trade relationship between Finland and China and not any other countries, and in case of statistical analysis and data goods trade is only considered and not services. Also, Mainland China is only part of the analysis and other territories of China like Hong Kong and Macao are not considered.

Also, it is limited to be on a size of a Master thesis, and us such is limited to around 80 pages in length. Additionally, it has more a focus on the later part of the time, not so much about 1980s and 90s, and more of the situations today and the 2000s especially in the literature analysis, where more to current political relations and trade pattern is in focus.

1.7 The structure

The structure of the thesis is as follows it starts with an introduction part. Second part of the thesis is a short history about Finland and China trade. Thirdly there come the part of literature review about trade economic, the gravitation models and political theory regarding trade including political relations, tariffs, trade agreements and investments parts. Fourthly there is a discussion part about general China, Finland imports and exports as well as trade relationship between the countries, EU and China and current political landscape. Fifthly there is the part describing the data used in the econometric research. The sixth part is the methods and model's part of the econometric research. The seventh part following it is the results part of the econometric study. The eight part is the study part of non-econometrical parts affecting the trade between the countries. The ninth part is a discussion part about expected future between the trade of the countries. The tenth part is the conclusion part, and the thesis ends with the eleventh part with sources and twelfth part of appendix consisting of the statistical models more detailed results.

2 History of Finland-China trade

Finland and China have as countries had a good or not a bad relationship, since the foundation of People's Republic of China with Finland being one of the first countries recognizing China in 1950 and start trade and diplomatic relationship with it, with both countries opening embassies in year of 1952 in each other's Capitals and making the First trade agreement in 1953. The trade between the countries can have seen to have different times of which clear ones are the trade under 1980 and 1990s, the time in 2000s before the financial crisis and the time following it until today. As well as time before the opening up reforms in 1950-1978 when China remined mostly closed from the outside world.

2.1 Finland China trade in 1950-1978

During the 1950s to 1970s the trade was not so big and consisted trade deals on a high level. this was the time during which China was closed mostly to the foreign world even if there was a Finnish embassy in China, there was not that much trade between the two countries. Finland started its trade relations by opening up the commercial department to the embassy of under Olavi J. Mattila and it got the first bilateral trade agreement made between communistic China in 1953 under ambassador Carl-Johan Sundström the first capitalistic country in the world. The contract under which Finland made trade with China was a tree party contract where Soviet was the third party. Soviet acted as the clearing party under the contract and the trades between the countries was settled in rubles. This made Finland to trade with China under 1950s starting from doing trades in paper and ships. Finland was still doing trade with China, during the blockade of it by YK after Korean war, and benefited, by being able to re-exports the products it received from China during this period to the western market.

The import products during this time consisted many from textiles, agricultural products like soy and rice and some chemical products. Under the 1960s and 1970s the trade between Finland and China was lower as under the political agenda was to keep good relationship to Soviet who under this period had bad relations to China. But on the other hand, this did not directly very much affect the trade rather the politics of China, who had its internal campaigns going on like the cultural revolution in China reduced the amount of trade between Finland and China in late 1960s compared to the 50s and early 60s, witch where trade wise more time of growth and stability in it. In the 1970s the trade between China and Finland started to grow again and the trade started to be settled in Finnish currency of Markka between the years of 1968 to 1982. (Tulli, ETLA Finnish embassy in China, Erja Kettunen, Jyrki Lintunen, Wei Lu, Riitta Kosonen)

2.2 Finland China trade in 1978-1991

This was the period when China started its open up policy and policy of the economic reforms in China and begging of the growth of the Chinese economy. This was also the time when the trade deals where very dominated on mutual agreements between the two countries, and EU played lesser role in making trade deals.

In begging of this period, the trade between Finland and China was still mainly based on import and export trade, while in the end of period Finnish companies stared to make investments in China for production facilities. In the year of 1979 Finland and China made a bilateral agreement concerning economic, industrial, technological and scientific co-operation. This contract included forest, paper and metallurgical co-operation. Later also energy, environmental and SME sectors where included in the co-operation. Furthermore, Finland and China made a contract on protection on investment and removal of double taxation.

In the year of 1985 China passed the law of joint venture companies in China, and in the year of 1986 the tree first Finnish companies of Raute, Schaumann and Puolimatka established joint ventures in China. In 1988 Finnish Vinetiluotto made around ten financing agreements manly in forest sectors for projects in China. This the expanded that by end of 1980s there where as many as 70-projects in China due to the big growth and development of the Chinese economy, with maybe the biggest on being the Valmet Paper Machinery company factory in Xian.

After the Tianmen protest of 1989 Finland did not cuts it high level political ties to China but Finnish minister of Foreign trade visited China in Fall 1989, but many of the projects and trade where on hold due to uncertainties of the Chinese economy, and trade was a couple more negative to Finland importing much more than it exported to China until Chines economy started to come on foots again two years later. The trade then got up growing by 23% in exports in 1991 and imports of 30% as well as Finland started to export more the machinery and equipment for making paper to China rather than the paper itself. (Tulli), (ETLA 2015), (Finnish embassy in China) , (Erja Kettunen, Jyrki Lintunen, Wei Lu, Riitta Kosonen 2008)

2.3 Finland China trade in 1992-2001

The period of following 1992 and onwards is classified as the period of socialist market economy after Deng Xiaoping southern trip. Under this period China restarted its rapid growth. A lot of more Finnish companies established their base in China under this period. A couple of examples being Nokia who established joint ventures in 1992-1995 as well as 1995 a partnership in Beijing which became biggest joint venture in the area. UPM started its first paper factory in China in Changchu in 1998 by buying it from the Indonesian company April. Kone established it elevator factory in Kunshan in 1998 for the Chinese market. Also, other companies like Elcotec, Stora Enso, Kemira, M-real and Rasio established physical preens in China during this period.

In mid-1990s Finnish exports where growing at a quick speed with Finland exporting electronic generators, steam boilers, paper, different cranes and telecommunication equipment to China.

Finnish business council in Beijing was established in 1990 and following it Finnish business council in Shanghai was opened in 1996. And the latest Finnish business council in Guangdong was opened in 2003 to serve the interest of Finnish companies in the area. (Finnish embassy in China),(Erja Kettunen, Jyrki Lintunen, Wei Lu, Riitta Kosonen, 2008)

To the end of this period the Asian Financial crises occurred but China, was not so hard hit by it thanks to, currency controls never been lifted preventing problems of currency crisis, and the trade continued nearly intact between the two countries.

The different Nordic banks including Finnish ones also established or enlarged their offices in China during this time to serve the needs of their Nordic clients. This include OP, Leonia, Nordea and other major banks. Nordea open it Shanghai office in 2001 and Handelsbanken in 2004. (Finnish embassy in China, 2019), (Erja Kettunen, Jyrki Lintunen, Wei Lu, Riitta Kosonen, 2008)

Also, in the end of the period late 1990s the imports of electronics appliances as well as mechanical machines started to grow in value, to become the most important import category of good imported from China. Finland on the other hand run a trade surplus mostly with China during this period mostly from high technology exports of telecom and other manufacturing into China, and the big period of exports of consumer goods from China had not yet started. In the case of Finnish imports from China under this period the most important import goods where textile manufacturing, clothes and footwear. (ETLA,2017, Tulli)

2.4 China entering the WTO in 2001 to financial crisis 2008-2009

China entered the WTO in 2001, which in many cases was in important step for development of the Chinese economy and trade. The WTO access reduced a lot of tariffs and other barriers of trade, making the legal framework clearer and risks lowers for investments in China, with better protections and more certainty on tariffs and quotas.

As well as during this time China saw maybe the biggest growth in its economy as well as export growth rapidly increased to all around the world, under which it became the leading manufacturing factory of worlds manufactured goods, for consumers goods.

While it also fueled massive FDI into Chinese factories and production lines with new better technologies put in place. Thanks to the entering of WTO, Chinese saw very big growth rates in its trade in the first years of 2002-2007, due to better access of foreign markets for its goods as well as inflows of capital and FDI in its manufacturing base fueling the growth in exports.

Under this period many Finnish companies expanded their production in the very rapidly growing Chinese markets, the period in which the Chinese economy growth was really fast. Of Finnish companies active under this time Kone had big growth thanks to the building boom in China and growth in the orders of elevators. Finnair had a big expansion of its route network to China having four different routes to China by end of the period.

Other companies to establish bigger business in China, where Konecranes, with its lifting cranes selling well there to big investments in infrastructure going on in China. Also, this was the golden age for Nokia in China by being leader in the rapidly expanding mobile phone market in China. Also, in general active Finnish companies in China grew rapidly by having over 200 Finnish companies active in the Chinese market by 2005. (Finnish embassy in China), (Erja Kettunen, Jyrki Lintunen, Wei Lu, Riitta Kosonen, 2008)

This can well be seen for example in Finnish imports data when imports of Chinese goods increased from a level of around little bit more than one billion of euro's in 2001 to more than four billion of euros in 2006. Which led to the Finnish China trade balance shifting away from a surplus in trade for Finland to a deficit, in trade. Also, under this period we see the big increases in imports of many different kinds of consumer products such of mechanical and electronical appliances, textiles and furniture's as well as diversification of the product categories exported to Finland from China. Correspondingly, the increased establishment of Finnish companies directly in the Chinese market lowered the exports there mainly as the electronic manufactures established big presents in the Chinese market. (Tulli), (ETLA, 2017)

On the other hand, Finnish exports saw its to peak in share of electronical and mechanical goods shares exported to China under this period, while still Nokia was the dominating company for Finnish economy.

Also, under this period the imports of electronics and machines grew a lot in value, and the average value of electronics and electronic imports reached over 2 billion of euros for the years of 2005-2009, partly do to do with Nokia's use of China as a producer of electronic appliances, while the value has not reached this level since. (Zhu Xiaodong, 2012, ETLA, Minyu Liu,2018), (Tulli)

2.5 Finland China trade after Financial crisis of 2008 -2018

During and after the Financial crisis of 2008 the Finland China trade did not expand at same speed as before and in some years there where stagnation of it. During this time the importance of Nokia declined as well as exports stabilized for 5 year in begging of 2010s and resuming their growth to China from 2016 onwards, even if China under this period grew on a moderate rate Finland was not able to increase its exports to China. A big part to explain the lack of growth during this period was the disappearance of Nokia phones and all the imports and exports that previously accounted for a big share of the multilateral trade. (ETLA 2017), (Tulli)

This was even case of imports there can be seen a clear sign of stagnation following the Financial crisis and lack of growth in the Finnish economy. Also, the Chinese economy slowed during this period and still is on a slowing trend, with the biggest growth rates been of a past, leding partly to a slower speed of growth in the trade between two countries.

Furthermore, there can be seen in this period a shift away from importation of textile goods from China to higher or medium value goods, like electronics and machines, with mechanical machines growing in importance to a reduction in imports of electronic imports, partly to do with fall of Nokia's manufacturing of phones. Additionally, under this period China has been doing a couple of internal rounds of investment stimulation and partly started to shift away from the export driven consumption model to a model of bigger share of domestic consumption. (Yu, 2010), (ETLA, 2017)

In case of Finnish exports to China this was a time under when Finnish leading export products to China became to come pulp and other forest related products, with their shares rising to around 30% of trade as well as other raw material products like metals and minerals also gained share in the exports of goods, as well as the value of the exports to China steadily started to rise again after the Financial crisis of 2008-2010. (ETLA 2017), (Tulli)

3 Literature review theory about trade

3.1 The gravitational model about trade the theoretical part

The gravitational model of trade was first published by Walter Isard in 1954, and it has been adopted and modified in different papers and have its origin from the gravitational model in physics. But the basic principality is to Include the trade Flow as an equation based on the physics model of gravitation. Where F_{ij} would represent the trade flow G the gravitational constant $M_i * M_j$ the GDP of respective countries and D_{ij} represent the distance between the countries. (Isard Walters, 1954)

$$F_{ij} = G\frac{M_i * M_j}{D_{ij}}$$

In the econometric application as the models are not totally exact following the Physical law of gravitation F_{ij} would be representing the trade flow between the countries G would be the gravitational constant, $M_i^{\beta_1}$ and $M_j^{\beta_2}$ GDP:s M of country I and j and their sensitivity growth by $\beta_1\ and\ \beta_2$ as well as distance between the different countries $D_{ij}^{\beta_3}$ and its corresponding exponential sensitiveness. Furthermore n_{ij} would represent the error term. Also, there have been different factors of tariffs, language, currency, borders, cultural differences, political relations and other factors included in more complex models of it often seen to be incorporated in the parameters of n_{ij} which describes them both as dummy and continues variables. (Isard Walters, 1954, Armington, 1969)

$$F_{ij} = G\frac{M_i^{\beta_1}M_j^{\beta_2}}{D_{ij}^{\beta_3}}n_{ij}$$

After this the model is natural logarithmic to be estimated as a model. With the natural logarithmic trade flow being estimated against a constant $\propto$ GDP of country I and j $\beta_1(Ln(M_i) + \beta_2(Ln(M_j)$ and the affect of the distance between the two countries $-\beta_3(Ln(D_{ij})$ and a error term for the errors ε_{ij} . In case of the increase in parameters they are just in different added after with a β_n parameter. (Armington, 1969)

$$Ln(F_{ij}) = \propto +\beta_1(Ln(M_i) + \beta_2(Ln(M_j) - \beta_3(Ln(D_{ij}) + \beta_i(Ln(n_{ij}) + \varepsilon_{ij}$$

3.2 The gravitation model previous researches between countries

In previous research between trade with countries, Dimitrios Karkanis found, in his research paper "EU-China Trade: Geography and Institutions from 2001 to 2015" that EU-China trade accordingly to the gravitational model that distance, and size of the GDP had as predicted effects on the trade. Meaning bigger GDP increasing trade with the countries as well as distance reducing it. Furthermore, he found out that land locked countries had bigger slightly positive share in trade with China as lack of water seem to play lesser role in the share of trade with China, as direct routes by rail have started to emerge in importance of trade. (Dimitrios Karkanis, 2018)

Lu Bai made in His study of "Effects of global financial crisis on Chinese export: A gravity model study", findings that the financial crisis and shrinking of GDP had negative effects on the exports to the main markets for Chinas exports. This was a clear indication of the importance of GDP growth according to the gravitation model for exports as the exports where seen to weaken in the results of the negative financial shock in Chinas export markets. (Lu Bai, 2012)

Ehsan Rasoulinezhad & Wei Wei also found in their Article about "China's Trade with OPEC Member Countries: A Panel-Gravity Model Approach" that GDP, difference in income, exchange rate, the openness level (tariffs and other red tape trade barriers), distance from China, and WTO membership are statistically significant factors determine the flow of trade between China and the respective OECD country. Of these estimates increased GDP, WTO access, openness of economy had a positive effect on trade flow, while distance was negative. Also, in case of exchange rate it was a question of whose side you look at in case the lower valued currency benefits while higher valued loses. (Ehsan Rasoulinezhad & Wei Wei, 2017)

M Bussière, B Schnatz found in their study about Evaluating China's Integration in World Trade with a Gravity Model, that China has been integrating into the World markets, very well already. In their study they found that China has been becoming as linked to the world economy as the markets of North America and Western Europe. Furthermore, they found that China is well integrated with the USA, Canada, Australia and several Latin American countries, as well as it has also strong connection to its neighboring countries in Asia. This was especially for the case of Japan where much higher integrity was found compared to its other Asian pers. Also, Canada, Australia and Peru showed to be more integrated than would have been expected, but this mainly relates to their big exports of minerals and other natural resources. (M Bussière, B Schnatz, 2007)

For the case to the countries in Europe of France, Germany, Spain and Netherlands have high integration with China as well as east European Countries and Finland also have stronger intensity than expected, while there was not found to be smaller for United Kingdom, Luxembourg or Portugal. Moreover, they found in their findings that trade integration between China and India remained low, especially by looking them sharing a border, but it could be justified with partly similarity in their products as well as bad political relations. (M Bussière, B Schnatz, 2007)

Minyu Liu found in her master's thesis of "An Analysis of Chinese Trade and FTA using Gravity Model" that having a free trade agreement between the two countries had a positive effect in general on the trade flow, compared with countries that China did not have a free trade agreement. Also, in her finding an FTA did not always necessary lead to increased trade as tariffs reductions and indirect international logistical chains could be affected differently depending how the tariffs where reduced as part of the FTA. (Minyu Liu, 2018)

She also found that other positive factors affecting the trade was common language between the trading country or territory and China as was for the case of Macao, Hong Kong, Taiwan and Singapore, with much bigger share of trade than GDP or distance only could suggest. Also, the ground expectations of GDP as well as distance had the expected effects, with increased GDP increasing the trade flow as well as bigger distance between China and the trade partner country reducing the trade flow between the countries. (Minyu Liu, 2018)

Willem Thorbecke found in his article about "China-U.S. Trade: A global outlier" that the US imports from China was much higher that would be estimated by a normal gravitation model comparing to other countries that China engages in trade with. It estimated the imports to be over 100 billion bigger than would had been normal on same GDP and other levels, also partly explaining the huge US trade deficit with China. In its finding it found that part reason for this is that China has a role in the global value chain to be an import country of components from other east Asian countries and the shipping the final goods to the USA. (Willem Thorbecke, 2015)

Tristian Krohn found in his Article of "The Belt and Road Initiative's effect on supply-chain trade: evidence from structural gravity equations", that the estimated gains according to of creating a west bound infrastructure project from China to EU that it would have a reduction equivalent of 15% of the distance between EU and China. He also saw the biggest gains from Belt and one road initiative to come to Russia with an increase of 3% in GDP and smaller shares to China of around 1% and even less to the EU. Correspondingly, the relative trade cost gains would be biggest to Russia followed by China and the EU with much smaller gains. He also suggested that an FTA would generate same gains in trade as the infrastructure investments in terms of reduced trade barriers. (Tristian Krohn, 2019)

Osman Ghanem found in his Article about “Applying Gravity Model in International Trade to China’s OBOR Policy Initiative”, That the estimated gains from the On Belt One Road that the constructions of the links between one belt countries and China, would especially benefit EU even stronger than China and other OBOR countries. This would be even stronger than an FTA between China and Europe if especially the rail links with Europe and China would be constructed reducing the transportation costs and time for goods between Europe and China. (Osman Ghanem, 2017)

In case of other near Asian countries of South east Asia and South Asia he found FTA would have bigger positive impact on the trade as the countries mainly are well connected already, through maritime and other links, while the infrastructure investments would especially benefit Central Asian and European countries in reducing the transportation costs. (Osman Ghanem, 2017)

3.3 Politics about trade

In case of trade between different countries policies are important to reduce the barriers of trade, or as well in opposite direction create barriers of trade when considering protecting the own market or other political reasons. This is usually done by limiting the access to markets by red tape and tariffs & quotas and other barriers of trade. Furthermore, to a trade to be possible it needs to give benefits for both parties. Also trade and investment agreements between the parties are important part of today's agreements to benefit trade relations and increase the trade flow between countries as they limit the risks involved in trade and provide legal and clearer basis to handle conflicts or disputes arising. Many times, trade agreements can be done as FTA (Free trade agreements), international trade organization like WTO, or by bilateral trade agreements. Moreover, political relations are also important parts for making trade agreements as well as promote trade between the countries.

3.3.1 Tariffs

The European commission has some tariffs on Chinese import goods. This is usually at the same level as of other non-free trade partners in the customs union and they are depending on their sector and classification of the goods. These tariffs have usually been put in place according to WTO trade rules as well as international agreements on levels of tariffs. These tariffs are usually normal trade practices and has had nothing to directly to do with trying to reduce or prevent imports from a specific country. Also, in many cases countries can make agreements for mutual reductions of them or other agreements to govern their sizes.

Furthermore, there is the tariffs that are charged to Chinese goods that are not charged on other third parties. The case of these has been usually the case of beliefs of China engaging in dumping or overproduction of goods under production cost. Other possible reasons have been that, it is believed Chinese government has given preferential treatment in case of subside, cheap loans to these sectors resulting in overproduction. These include cases of steel and some other goods there has been specific tariffs laid on them. Other cases where extra tariff has been made are electrical bikes and solar panels, where same reasons of overproduction and dumping as reasons has been given. (Michael Martina, 2109)

Furthermore, China has also tariffed of goods for imports from the European Union. In case of tariffs China usually taxes highly goods that it considers to be luxury goods, like imported alcohol, cars, consumer appliances beauty products and cosmetics and other luxury clothing and items. Usually China has put tariffs in these sectors to protect them from foreign companies to favor more the local brands and production, like alcohol and luxury clothing.

Other important reasons have been that China wants to develop its own manufacturing base in these sectors or wants to have them produced in China on a bigger scale like the case of car and other vehicles, as well as create own brands and manufactures in these sectors.

These tariffs where in many cases on levels like 20% of the goods value if not more for example jewelry where taxed on a rat over 30% up until 2018, when some tax cut where done to absorb the effects on trade war with USA on consumer prices. As well as an effort to get more of the consumer sales to the grounds of mainland China instead of Chinese consumers going overseas for shopping. It can also be seen as a signal from the Chinese government to try to keep for example the European union away from the trade war as big part of the Luxury items and goods are coming from the EU, with the biggest luxury goods makers in the world. (South China Morning post)

The luxury taxes can also be in many cases as import tariffs as most of the goods coming in this category are made of foreign brands and goods. For example, In the year of 2010 China got a revenue of RMB1.2 trillion in different kind of luxury taxes and import tariffs nearly accounting for 78% of that year's government spending. This has then led to Chines consumers when going overseas to shop a lot of luxury goods as the price difference is very big. For example, products of wine, cigarettes, jeweler, golf equipment, luxury watches and high-grade cosmetics have a tax rate of 50 per cent as of 2019, while they were at 60% in 2018. As well as, cosmetics are taxed on a scale from 50-10% in addition to import duties and VAT leading to massive shopping of goods aboard as, well as many foreign firms and countries also complaining that their goods are at a disadvantage compare the local Chinese manufacturers. (China Briefing, South China Morning post)

3.3.2 Quotas

In case of using quotas, a country or trading can restrict the amount of goods of a certain type imported to the area or country. This was for example the case of clothing and textiles for the time before China's WTO access, when the EU had in import quota for Chinese textiles. Furthermore, the use of quotas is not nowadays as common as use of tariffs, but they can be used as key role in protecting own industries from foreign competition, while only limiting the amount of foreign goods that can come into the domestic market. Additionally, EU dose also protect its domestic agricultural sector by imposing quotas on imports in different categories and countries. (Deutche Weile)

Also, in case of quotas they can be combined with a limited quota under tariff free trade, and when the quota is reached tariffs are charged on the goods. Additionally, EU has put on a steel quota with the system described just before on steel as the trade war between US and China goes on to protect its steel industry following the steel tariffs set by USA, to protect its own industry. Of the importing countries, China is one main player and producer of steal and the quota and tariff, would restrict Chinas ability to export its steel to the EU. (New Europa)

3.3.3 Other trade barriers and red tape

In case of other trade barriers of trade expect quotas and tariffs, there exist many forms of non-direct measures to hinder the trade. A couple both practices by EU and China is forms of trade facilitation, which include checks of goods, administrative procedures on the borders, increased time at the customs and random safety and other checks of the goods. These checks of goods and time being at the customs increases the time when the end consumer is able to get the goods as well as for some products like food or plant or animal products, might be stuck in the customs and get bad before reaching their end consumer. Also, in many times quicker shipping times are important to many buyers of goods. (Michael Martina, 2019)

Furthermore, both zones of trade use standards and other safety regulation to hinder the development of imports for the country or customs area. For example, EU has safety standards on its goods sold in the area and China do it as well, often so that the area demand that the imported products meet at least some domestic minimum standard to be sold in the FTA. (Investopedia)

Additionally, licensing is a way of creating a cost or barrier for trade meaning that to be able to import goods or other merchandized products you need to get a license for it. Almost all countries or trade areas uses licenses for permitting the importation of goods into the country. For example, China requires that you need to have an import license when you import goods into China and you have to apply for it from the MOFCOM (the Ministry of Commerce), which takes around two weeks for the automated import license. Furthermore, China also has restrictions on some products categories of imports needing additional licenses before they are able to be imported into China, often concerning food and other animal products as well as some other products. (Marcus Sohlberg, 2017)

Other barriers of trade can be seen coming from trade embargoes, meaning that trade is boycotted with and country or region mostly for some political reasons. The case of the embargo in China relations with EU or Finland is the Arms embargo banning the sales of weapons and other military equipment into China, originally put up in place for political reasons but seen by economical perspective limiting the exports from EU to China. Additionally, China has many times, threaten to block rare earth metals exports to other countries in case of some political, disagreement, also potentially causing some sort of embargo of its own exports of rare earth metals.

Also, in case of currency it can be also used to affect the trade as barrier, firstly it can be made restrictedly convertible, which still is the case of RMB, with restrictions in place in transferee and conversion of the currency, making it harder to make currency transactions and dose restricts the trade. Also, by limiting the amount of foreign currency for domestic consumers and companies, countries can limit or restrict the import of foreign goods as they are not able to pay for goods with foreign currency.

Furthermore, the exchange rate can also be manipulated to stimulate exports and discourage imports by making the currency undervalued or if its overvalued with having the opposite effect on the trade flows. This for example can happen when currency is devaluated against others to increase the competitiveness of home market goods against other countries. For example, China has devaluated its own currency many times in 1980s and first half of 1990s as well as in the years following 2015, to increase competitiveness for its exporters. Finland also as country used to devaluate its currency up until 1992, when Finnish Markka was changed to a free-floating regime where it was freely traded on the market, following of opening up of Finland's capital markets for foreign capital.

On other case of trade barriers is the form of boycott of one countries product, this for example usually is a case when political conflicts arise from some issue and a country starts to boycott and hinder the trade between, the parties. For example, in case of China this happened to South Korea after its launch of the TSAAD system into its soil and Chinese government started to boycott South Korean products, reduce outgoing tourism to South Korea as well as make it harder for South Korean companies to operate in China. (East Asian Forum)

3.3.4 Subsides & State aid

Subsidies as well as state aid can also be seen to benefit some parties in trades as it makes companies cost go lower than they would be in case of normal market-oriented terms. In case of subsides, they can come in many different forms, for example cheap state loan to companies, direct aid, export and import subsides, tax breaks, lower employment cost and production and transportation subsides. In case of China and Finland both countries have used forms of subsides, on the time with Finland for example before joining the European union frequently, owned lot of state companies and gave direct aid to them.

While after joining the EU the ability to directly subsides industries has been restricted by EU regulations. But there still exists subsides in many sectors, that are allowed by the EU-legislation, for example building of infrastructure by state to a fabric, some tax policies and so on.

In case of China, the Chinee government offers cheap loans to its own state companies as well as has not been able to comply to WTO rules. The non-compliance of WTO rules has been one of the main sources of disagreement between many western countries and China over trade. This was one of the reasons for tariffs and trade war to between China and US, as well as in smaller disputes between EU and China. It has also used subsides including state-directed lending, direct investments, tax breaks and local government incentives to promote some industries as well as the state-owned banks have been ordered to cheaply lend state owned companies. Due to these advantages the companies have often made big investments in production. Which have often resulted in massive over-production in certain sectors, for example steal and PV-panels. Of witch the over production has led then to dumping the products into the world markets, lending to dramatical drop in prices and unfair competition in the world markets. (Reuters)

3.3.5 Free trade agreements & trade agreements.

In case of free trade agreement, it has in the past literature be shown that an existence of a free trade agreement increases the trade between the countries in question. This can be coming from the lowering of tariffs as well as red tape and other barriers of trade between the countries. These could be done by making common standards and requirements for products, as well as measures against unfair competition such as state subsidies and dumping of products on the markets. For example, ASEAN, EU and other zones are free trade zone and as such there has been seen increases in trading in them, after a country entered the trade zone. Mostly due to increased trade inside the trade zone customers benefits from more competition and lower prices. Also new jobs are created to contribute to the increased trade, but in many cases some uncompetitive or previously protective sectors sees bankruptcies and loses of jobs. (Yu, 2012)

In the previous research done in Asia it was shown by Xinyi Li showed that Free trade agreements like ASEAN as well CAFTA increased the share of trade in the region of East and South east Asia. It also concluded that due to a free trade agreement done in the region increased the vertical integration of supply chain lines between the countries. Additionally, there was seen that the free trade agreement increased the specialization of production of certain goods to a specific region and later then the products where shipped to other countries as intermediate or final goods in the region, with increased share of trade to GDP. (Xinyi Li, 2009)

Also, regarding one of the most important trade agreement which China has made in the last year was Joining the WTO enabling it to come part of the global trade system, leading to big reduction in tariffs between it and other members of the trade organization. Furthermore, it led to increased foreign direct investments into China by foreign companies. Leading to China developing into world's leading consumer products manufacture, shipping cheap product to around the world during the close period following the entrance of WTO. As well as increasing its GDP by transferring workers from farms to factories in cities. (Boden, 2012), (Chen, 2009)

3.3.6 Bilateral trade agreements

Bilateral trade agreements have the same effect as the free trade agreements as their main objective usually is to promote trade between the countries. This can be done in many ways depending on the content of the bilateral trade agreement. Examples of these include reductions or eliminations of tariffs, removal or reducing no-direct tariff, such as red-tape, import quotas, defining standards and opening up closed markets for competition.

Other things trade agreements may agree on is that intellectual property rights and investment protection, as well as measures against dumping of goods or subsides or state aid for companies, operating on sectors concerned by the agreement.

Finland and China made already their first trade agreement in the year of 1953 enabling Finland to do trades through Soviet clearance. This trade agreement led Finland to do trade between Finland and China from the 1950s to 1970s, where after China started to open up more and in 1979 a co-operation agreement was signed to development, in sectors concerning economic, industrial, technological and scientific co-operation, later expanded also to forestry and metallurgy. (Erja Kettunen, Jyrki Lintunen, Wei Lu, Riitta Kosonen, 2008)

After this Finland and China made a bilateral Investment agreement in the year of 1986 and had it replaced in the year of 2006 by a new one with a time frame up until 2026, when it has to be extended or a new one created to be intact. This bilateral investment agreement really opened China up for Finnish investment in the country as before it was mostly only trade between the two countries. The bilateral investment agreement between the two countries to protect investments from both countries, and making up a solution mechanism, if disputes rise. This agreement has as its aim to both parties protect the investment as well as patents, Know, how and so on from being stolen and us such make it easier for both parties to invest in the others country. It was made to promote direct investments from both parties, interest and protection of their capital investments and innovations. (SUOMEN SÄÄDÖSKOKOELMAN SOPIMUSSARJA ULKOVALTAIN KANSSA TEHDYT SOPIMUKSET, 2006)

Following this agreement Finland joined the EU in 1995 leading to most of the major trade agreements to be done more on EU and international levels of organizations like WTO, leading Finland just to do more of bilateral trade deals on for example education exports, energy and paper and pulp. While the general trade frameworks and agreements where made on EU or international level between China. (Erja Kettunen, Jyrki Lintunen, Wei Lu, Riitta Kosonen, 2008)

3.3.7 EU-China trade agreements

The European Union and China started bilateral relations with each other's by establishing relation with each other's in 1975. After this the most important trade related agreement was formed in 1985, with the EU-China Trade and Cooperation Agreement. In the EU-China Trade and Cooperation Agreement there is agreed on trade Corporation as well as Economic co-operation.

As written in the most important agreements where written in the 3 Article as under:"

(a) customs duties and charges of all kinds applied to the import, export, re-export, or transit of products, including the procedures for the collection of such duties or charges;

(b) regulations, procedures and formalities concerning customs clearance, transit, warehousing and transshipment of products imported or exported;

(c) taxes and other internal charges levied directly or indirectly on products or services imported or exported;

(d) administrative formalities for the issue of import or export licenses."

Under the agreement there was agreed of tariffs, quotas and duties and taxes on trade and investment as well as Economic cooperation in sectors including industry, mining, transportation, energy, environmental protection and science and technology. Furthermore, there was also written in the agreement about joint committee of future development of relationship between the two countries. (Agreement on Trade and Economic Cooperation between the European Economic Community and the People's Republic of China, 1985)

After this China joined the WTO in 2001 future integrating it with European markets, by being able to trade under trade rules of it with the EU, under where most part of the business is done today if not differently agreed with the two parties, or in case of punitive tariffs put up.

In case of Chinese trade with Finland or China EU trade, both China and the EU have been members of the WTO, which regulates trade practices. In the WTO agreement for example levels of tariffs are regulated to different products on certain level, with the countries have to follow when trading with each other. usually the tariffs being higher for food products and textiles, while lower for other types of goods.

The access of WTO membership in 2001 meant that many of the Chinese goods got better access to the European markets and other WTO members. with ability to limit the tariffs and quotas, that previously had been charged over Chinese exports to EU, even as some goods got phase out periods. It also meant that

European and other international companies had easier to set up factories in China and start to export to the European markets their goods as legal and trade risks of tariffs where much lower than it had been on the period before China joining the WTO. This led then to massive increase in trade between the areas especially regarding the exports to EU before the Financial crisis. (Boden, 2012), (Chen, 2009), (Wakasugi, Zhang, 2015)

Also, the EU-China Comprehensive Strategic Partnership in 2003 was drawn up. This partnership lead to maybe one of the best periods in political relations between EU and China for the years of 2003-2005 with very many Chinese and EU leaders visiting each other's countries. But there still are problems with the countries which came to the surface regarding the Human rights in China as well as the lifting of Arms embargo which has so far not been lifted by the European union. Under this period the trade in years 2002-2007 grew rapidly between the blocks but had as a chronical problem of being a trade deficit for the EU as it grew rapidly during this period. Reasons being ending of quotas for imports for Chinese goods, for example the textile quotas were lifted in 2005 leading to a massive increase in textiles flooding the European market while Chinese imports did not keep up with the face of its increased exports to the European union. (Jing Meng, 2007), (European Commission)

Currently there is a discussion and draw up of the EU-China 2020 Strategic Agenda for Cooperation, where the second chapter is made about prosperity including trade and investments. In the plan there is talks about making; use of the practices of WTO, rules, investment protection and market access. It also includes mentions about financial stability in the currency markets. It also has mentions of negotiating and concluding such a comprehensive EU-China Investment Agreement, which would have as objective in long term to lead to an FTA between the two trading areas, reducing trade barriers of tariffs and regulations. (European Commission)

3.3.8 Chinese trade and investment policy of foreign companies and intellectual rights

In case of Chinese investment policies, it has had restrictions in sectors which foreign companies can operate. This can be classified from being first solely owned sectors, joint company sectors and sectors where foreign companies cannot enter. Also, in case of intellectual rights they are not that well protected in China.

FDI (Foreign direct investments) into China, was a big part of its original success of growth with China's economic success story begging with FDI and special economic zones in 1980s 1990s and where foreign companies could take advantages of the cheap labor costs, while Chinese got capital investments and foreign know how and implementation of better manufacturing technologies, and led to the successful export led growth model that worked for China up until the Financial crisis of 2007. It was also under this period when China in 1992 made many of the lucrative incentives to make investing in China for foreign companies very advantages, by granting including: exemptions from many taxes (corporate, VAT, executive), cheap land and rent, no social benefits contribution and so on as well as strong control not be under communist party control. (European Commission)

These incentives then led to the flow of foreign investments into China and the rapid rise of the export sector up until 2007. Most of these incentives started then disappearing after 2005 when local companies started to complain about them and now at the most of them are disappearing and the new company law going to be intact of 2020 would put the foreign enterprise on the same level as local Chinese ones.

On the other hand, after 2007 the role of the Exports and FDI have been shrinking in importance, in favor of more domestic companies and internal consumer demand, meaning that the foreign companies have partly lost some part of their importance in the Chinese economy, and it has become more dominated by domestic private companies and state-owned giant companies.

Furthermore, Chinese government discriminates in many ways' foreign companies regarding government procurement, meaning that local Chinese companies are at advantages when it goes for government contracts even to fully or partly foreign corporates incorporated in China. (Dingding Chen and Junyang Hu, 2019)

4 Trade Between Finland and China

4.1 Finnish exports to China

Finnish Exports to China can be seen increasing more constantly than exports and having a record level in 2017. This be attribute of China's economy been growing also in the 2010s while the Finnish economy has been flattering since the financial crisis. Also, in case of Finnish export to China there can be some small up and downs, but the overall trend has been growth. For example, the export to China where rather flat in the years of 2010-2016 but have been starting to grow more rapidly since then in 2017. 2017 being so far the best year in exports both on yearly level and share based on total exports. Also, to be noted is that during the 1990s, Finnish exports to China where on a rather high level in general due to exports of High-Tec telecom equipment, which have since been falling down in importance as of Nokia selling mobile phones and China coming up with domestic companies.

Figure 1 Finnish yearly exports to China 1970-2017 (Tulli)

When looking at the share of Finnish exports to China it can be seen that the share of it has been more or less on a constant trend to bigger share of the total exports, with some up and downs since the 1990s. In the year of 2017 Finnish export to China reached a record share of 5.7% of the total exports from have been around 0.5% before the 1990s. Additionally, as Finland also exports a lot of intermediate goods to

Germany and Netherlands who re-process them and/or re-export them later to China leding to the importance of China as an export market is higher than just direct exports statistics might suggest. (ETLA, 2017), (Tulli)

Figure 2 Chinese share of Finland's total exports 1970-2017 (Tulli)

Figure 3 Finish Exports to China 2018 (Tulli)

In looking at the biggest export companies to China as of 2017 Finnish Companies employ over 60000 Chinese workers and there are over 350 Finnish companies with investments in China. The biggest sectors for Finnish trade was in the year of 2018 paper and wood products with a share of 28%, mechanical machinery products 17 %, electrical machines and products 12%, and optical, measuring, precision medical instruments and apparatus 7% and wood and articles of wood 6%, (Figure 3).

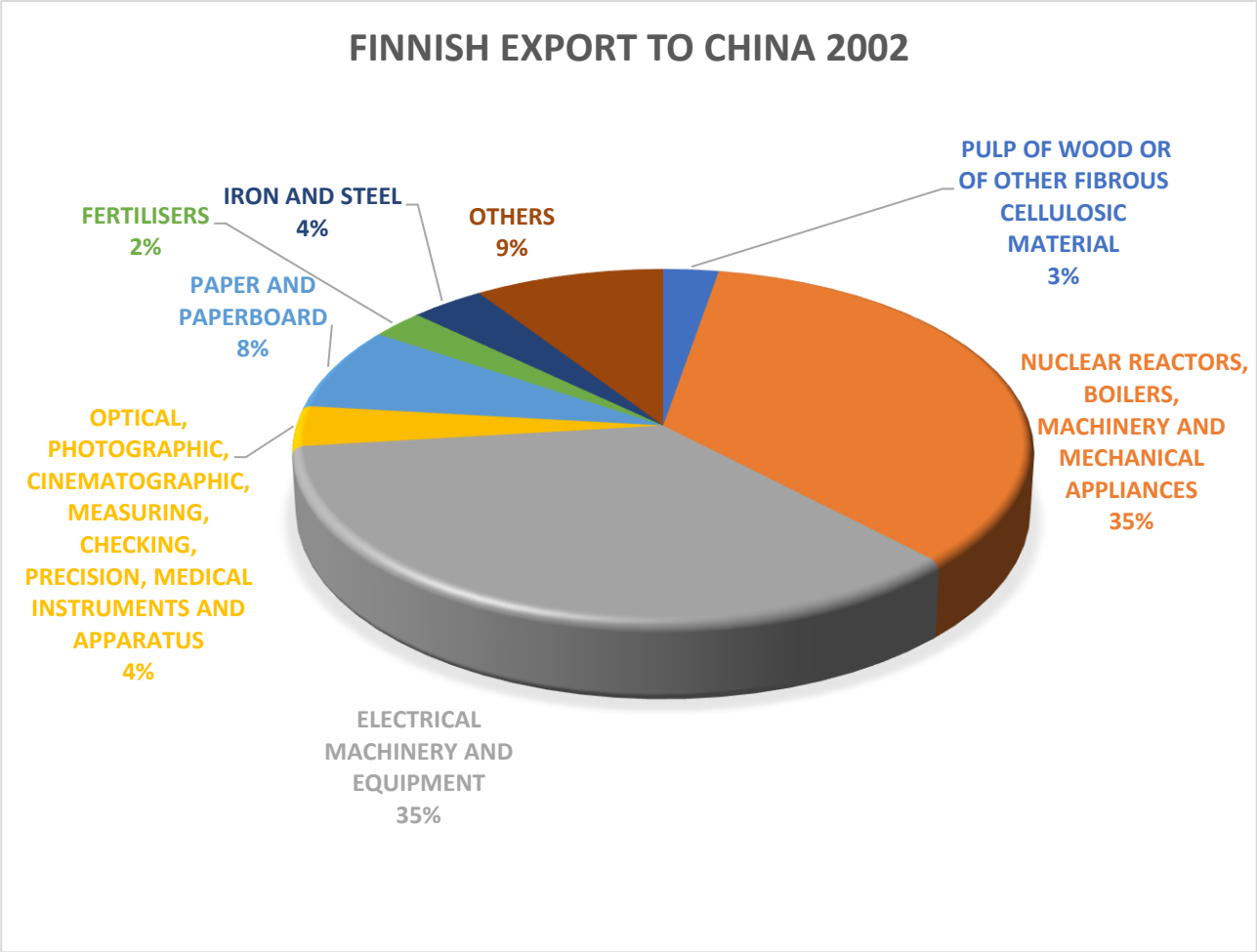

Figure 4 Finnish Exports to China 2002 (Tulli)

Originally the trade between the countries where more dominated by Finland exporting high technology goods to China and reserving more low value manufactured goods from it in 1990s and beginning of 2000s and before. On the other hand, the structures have changed a bit with still Finnish exports of high-tech goods to China, but also more raw material goods including paper, pulp and metals witch in earlier days was not big sectors in exports to China, while electrical machinery and high-level manufacturing sector more dominated the exports. (Tulli) (see Figure 3 and Figure 4)

Figure 5 Finnish exports to China 2002-2018 by category share (Tulli)

In the recent years especially, the demand for Finnish paper and wood products have grown while the electronics products have been more stable, And the wood sector becoming the biggest export sector. This can be seen well when looking at Figures 3 & 4 of Finnish exports in 2018 and 2002. In 2002 The trade was dominated by 2 categories of mechanical and machinery appliances and Electronical Machinery and Equipment by 70% of total exports. In 2018 the shares had shrunk to 17% and 12% and the exports of pulp and cellulose had gone up to 28%. Also, it is important to notice too that metals and other wood related products have been increasing in shares of exports to China, exemplifying that Finnish exports have become more and more dominated by raw materials instead of export of high technology manufactured electronic and mechanical goods to China.

When looking at the structure of trade Finland offers many products that China has a growing consumer and big manufacturing country lack of, leading to growing opportunities for exports. Furthermore, many Finnish Companies have world class lending know how and technology in their fields. First in case of more raw material industries such as forestry sector Finnish exports have been rising as China lacks big forests in productions for its growing, market for paper and pulp, as well as different kinds of forests than Finland has

in production of paper. Also, Finland has a couple of technology companies doing big exports to China like KONE, Wärtsilä, Metso among others. (Suomi Kiina kauppayhdistys), (ETLA, 2017)

The biggest exporting companies to China has been including companies such of UPM, Stora Enso, KONE, Nokia, Kemira, Saga Furs and Metso. When looking at the goods which Finland exports to China it can be seen that the export products mostly are industrial goods and raw and agricultural material, which also are not that much affected by tariffs and other restrictions put on by Chinese government for luxury and high end consumer goods, meaning that Finland is better able to export goods into China, without big duties affecting them. (Suomi Kiina kauppayhdistys), (ETLA,2017)

According to the Chinese Ministry of commers and Finnish Customs data in 2016 the most important export goods to China from Finland included: Mechanical equipment and parts, motor, electrical, audio-visual equipment and their accessories, fibrous fibers such as wood, pulp, waste paper and cardboard, fur, artificial fur and products, optical, photographic, medical and other equipment, copper and copper products, ore, and steel products. (Ministry of Commerce peoples republic of China)

4.2 Finnish Imports from China

Finnish imports from China started to grow a lot after the opening up policies of China in the 1980, with the biggest growth being in the 1990s and early 2000s before the Financial crisis, after which the imports have gone up and down around the level of 2006-2007. The imports of China have been mainly coming from manufacturing and consumer goods sectors, which is the same case as for many other developed nations regarding the structure of the main import goods from China. (Tulli, ETLA)

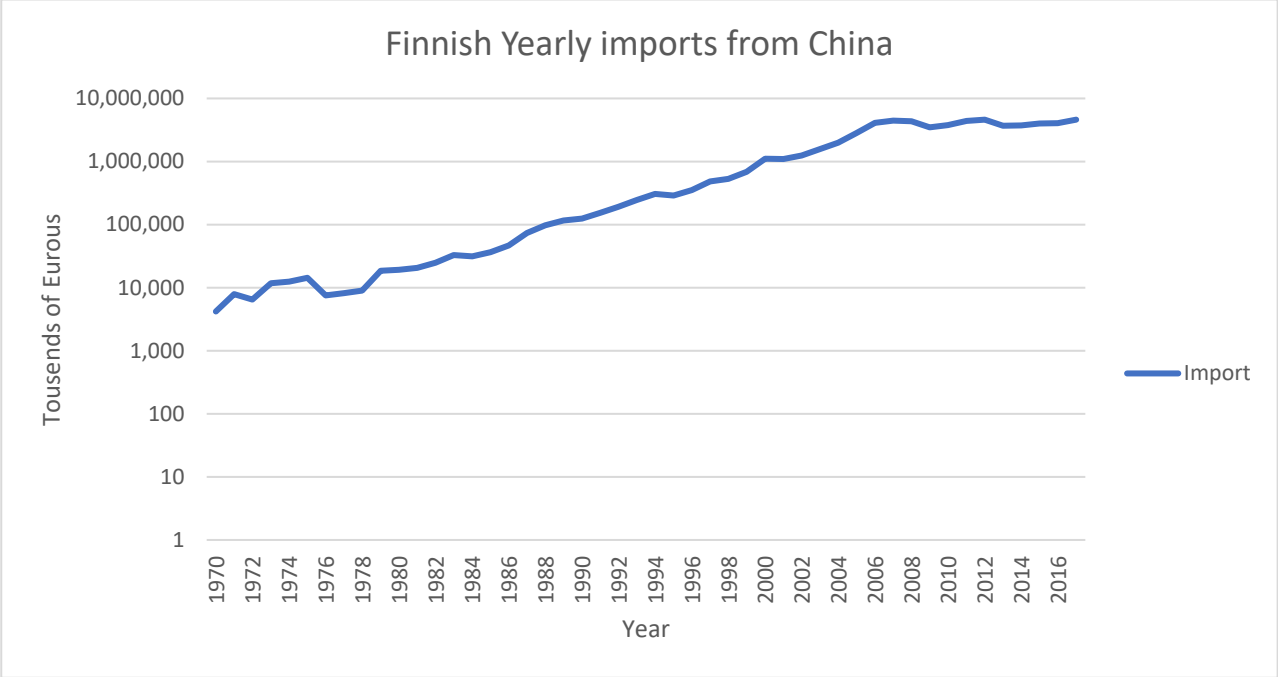

Figure 6 Finnish yearly imports from China 1970-2017 (Tulli)

When looking at import sectors from China, it can be noted that imports from China to beginning started from imports in clothing and footwear manufacturing. Then it developed more other low value-added sectors such as manufacturing and lower qualities of electronics to higher innovative sectors recently like telecommunication equipment's, computer and other electronics, while the clothing and footwear sectors started to decline. (Tulli, ETLA)

Figure 7 Chinese share of Finland's total imports 1970-2017 (Tulli)

Additionally, as seen in the figure above about import share it can be noted that the share of Finnish imports from China grew rapidly in 1990s to the financial crisis in 2017. It grew from a level around 1% to little bit more than 7% of Finland's total imports. After this the share has more stabilized around a level of little bit more than 7% of total imports. (Tulli, ETLA)

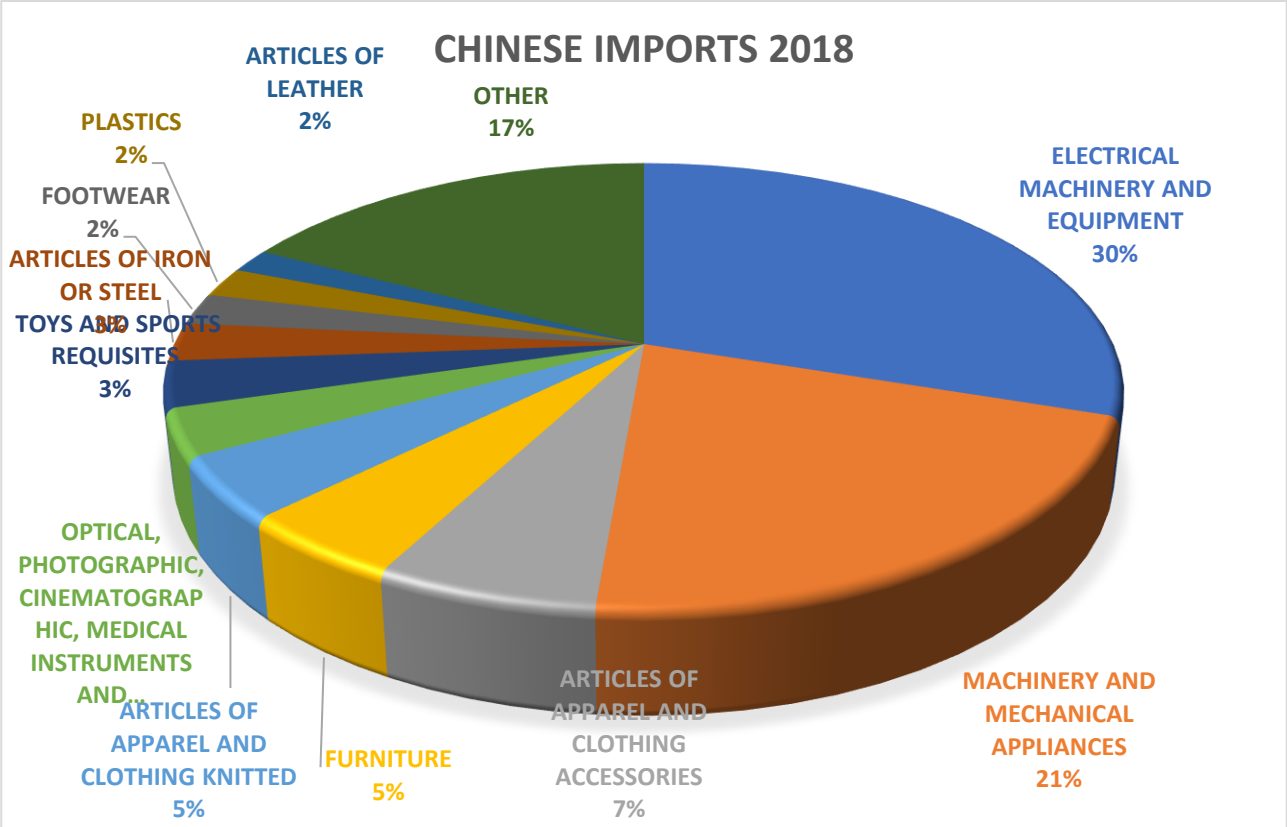

Figure 8 Finnish Imports from China 2018 (Tulli)

The most important goods imported from China to Finland in 2018, was products of imports of electronics, manufacturing goods, textiles clothing and foot wear, equipment and its accessories, furniture and steel products. Which reflect overall the same products that China usually exports to other western developed countries, with electronics and other manufacturing goods being the biggest ones. (Ministry of Commerce peoples republic of China, Tulli).

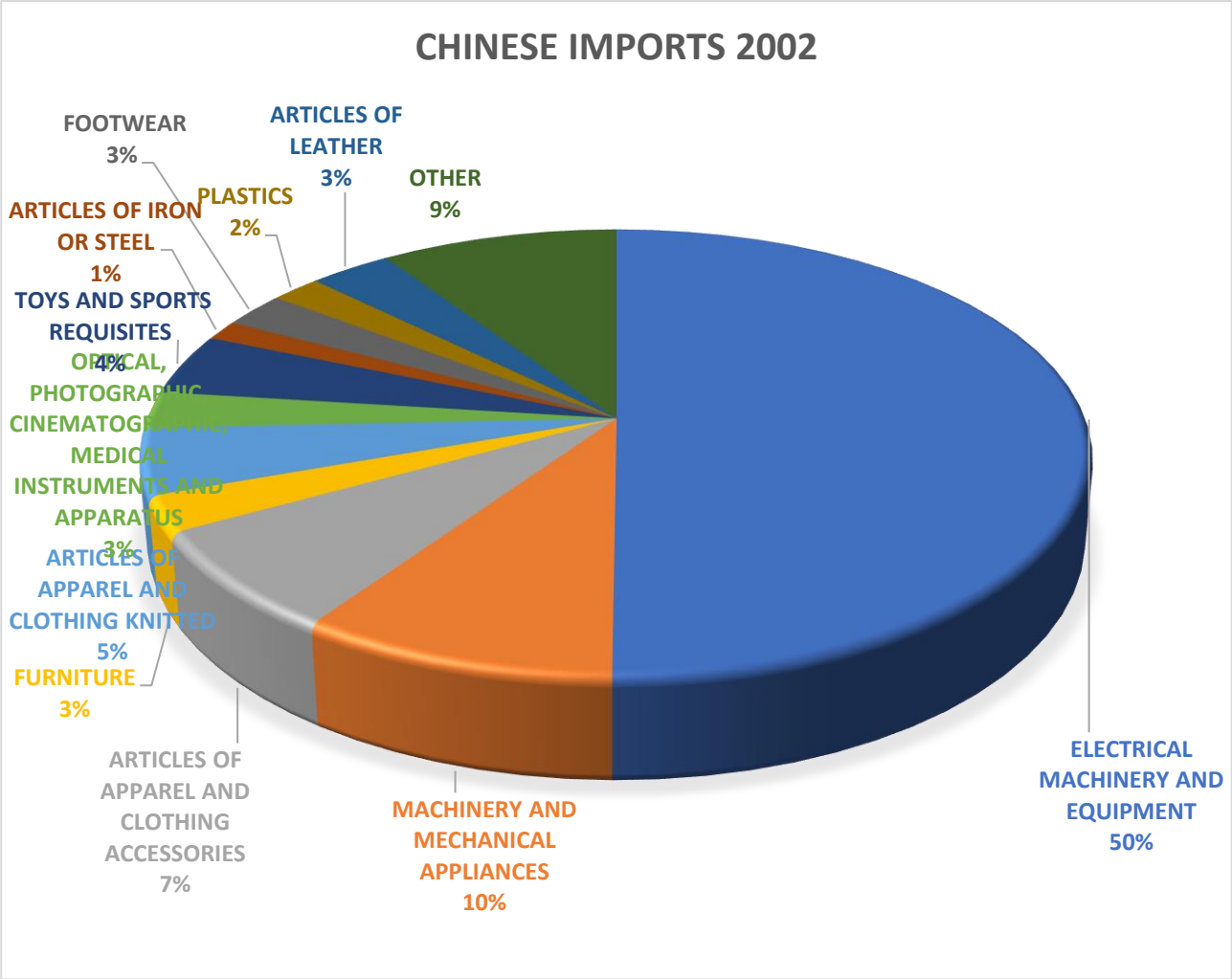

Figure 9 Finnish Imports from China 2002 (Tulli)

In 2002, it could be seen that the imports from China was dominated by the imports of electrical Machinery and equipment with half of the values of exports coming from this category, partly due to big Finnish electronical and telecom industry then and consumer needs. The other exports with big share come from clothing, footwear, and textile industry as well as machinery and mechanical appliances. (Tulli)

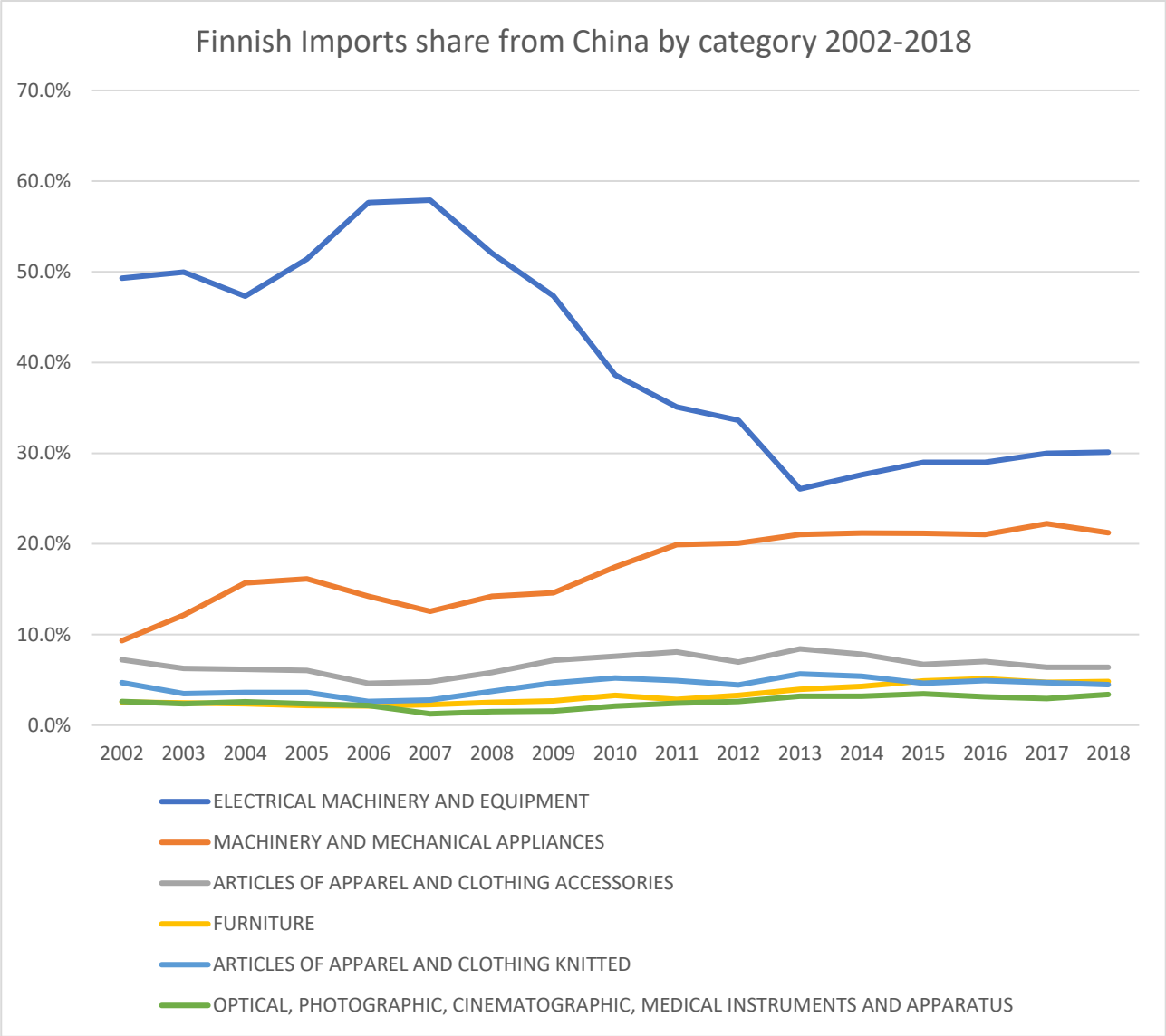

Figure 10 Finnish Imports share from China by category 2002-2018 (Tulli)

When looking at Finnish Imports from China and their development it can be noted the electrical and Machinery equipment is the dominating import category even if it shares has been sinking from around 50 % in 2002 to 30% in 2018. Other important categories that has been growing in share is machinery and mechanical appliances, while clothing and textiles have lost importance for imports. Furthermore, there has also been seen more diversifications of different categories of exports to Finland with many smaller categories growing in importance. (Tulli)

4.3 Trade balance

The Balance of trade was positive with China up until the early 2000s, with the exports of telecommunication equipment contributing to the biggest share, that has after that slowly been dismissing to near nothing of the original one. After the entering of China to WTO the trade balance shifted to be much more negative to over two billion of euros a year for the years of 2006-2008, just before the financial crisis and have been getting since closer to just one billion euros a year since then but still remained negative. Also, in case of GDP share as seen in figure 6 it can be noted that Finland had as largest a positive trade balance of 0.45% in 1998 as share of GDP and then it shrank to its lowest of -1% in 2006 and now lies on around -0.5% as of 2017. (Tulli, ETLA)

Figure 11 Finnish trade balance with China 1970-2017 (Tulli)

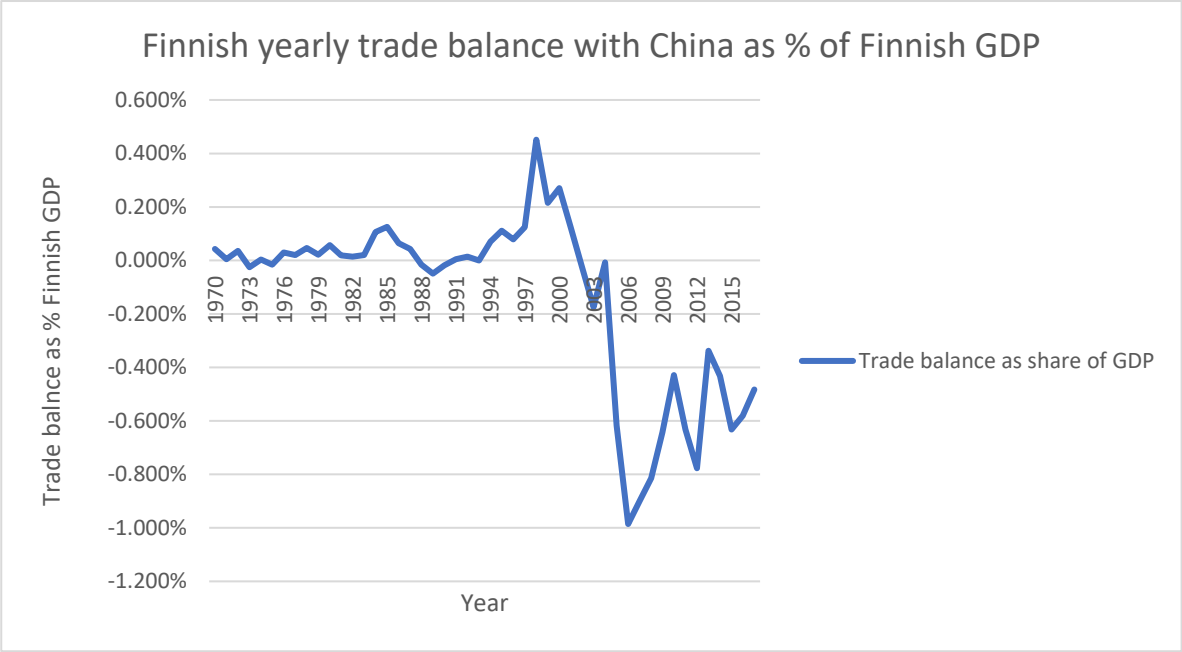

Figure 12 Finnish yearly trade balance with China as % of Finnish GDP (Tulli)

Also, when looking at the GDP share of the trade balance it can be noted that the global trend of having first a dramatic change in bigger trade deficit with China for the western countries follows, too for Finland where after the Financial crisis this has been reducing as for many other nations, when China has become more a consumer of goods rather than just be an exporter of them. Also, if the trend as currently continues it can be expected that Finland China trade will be edging more towards a balance as the imports to Finland has not been growing as quickly as the exports to China in the last 10 years. (ETLA, Tulli)

4.4 Political relationship affecting the Finland-China trade bilateral ones

Finland is as part of the European union's customs union part of the trade policy affecting direct tariffs other standards of the trade zone meaning that direct bilateral trade agreements needs to be made on EU-China level. On the other hand, Finland and China are free to make bilateral trade deals as well as promote the trade between the two countries. Finland as a country has so far in its diplomatic ties stayed away from major conflicts as Sweden's, "Chinese arrest Chinese-born Swede bookseller Gui Minhai" or Norwegian giving of Nobel price to Liu Xiaobo, as examples of conflicts other countries faced. Even as it is many times said that the presidents have been talking about human right issues together, there has not been so far any major interest from Finland actively promoting them against good commercial interests.

Furthermore, Finnish foreign policy is more of a policy of no-interference in other countries internal affairs as well as Finland has so far at least not been seen as treat by any other country military, as well as it has remained still outside major military alliances and conflicts after the second world war and has done so in case of neutrality. In case of trade policy this non-interference in other countries affairs as well as not being a military treat can be seen to positively promote trade relations with China, as there is a mutual trust on both parties, and Finland is seen by Chinese in a good view. (Santa Stopniece)

This non-interference of Finnish foreign policy can be seen partly to take back to the time of existence of Soviet Union and Finland after the second world war when Finland was a neutral country doing both trade with the east and the west, with no direct interference in the local internal issues. Also, this tradition has continued in some parts as Finland is cautious in its actions, regarding foreign affairs and involving in other countries affairs, even if it has become more independent in foreign policy following the collapse of the Soviet Union. This can be still seen to exist in big sense today as Finland do not be a country who directly get involved in other countries affair and emphasis its cautiousness by being more of follow up country in condemning actions of other countries after others firstly criticized them. (Ulkoministeriö)

In the case of China Finland does not see it a strong security and military threat to its existence as the country lies far away and Russia lies between, making it to work as a big buffer zone for security reasons. Also, Finnish military and security policy has the whole existence of its independence been most worrying about Russia or Soviet intentions, and Finland has used of Policy of cautions and non-interference to tackle issues, as well as promotion of international multigovernmental organizations to make up the rules. Also, this in case of trade with China where Finland likes to promote its legal and regulatory rules in organizations like WTO and EU to make up the rules and then itself lobby trough them its aims. (Hiski Haukkala)

Furthermore, Finnish companies as well as government economic delegations have been used to do trade with the former communistic part of the, world countries with Finland doing, big share of Foreign trade with Soviet and following Russia and other east European and other former soviet countries, making it easier to do trade even with China, as some level of corruption and highly level politics trade is common for them as well as there has been done trades between Finland China even if on a smaller scale nearly during the whole existence of the People's Republic of China, Finland was one of the first capitalistic countries to make a trade deal with China as early as 1953 and the trade has been continues since then. (Erja Kettunen Jyrki Lintunen, Wei Lu, Riitta Kosonen)

Finland has also as one of the few western countries had constant representation in Communistic China, and not cut ties with it as most of the western countries did. Even if the trade relations and political relations where not so active during cultural revolution, Finland still continued its trade and political relations, all the time contributing to good will between both countries regarding the relations. (Erja Kettunen Jyrki Lintunen, Wei Lu, Riitta Kosonen)

Also, when concerning the Human rights and minorities issues in China, Finland as a country compared to some other European countries, do not appear to be a vocal critic of these issues especially in the public by politicians in power, with the politicians in charge usually being caucus not the upset any foreign powers. While it prefers to handle big disagreements more on pragmatical way and out of the public sight in behind the scenes. For example, concerning the prisoning of the human rights lawyers and other activist in China, Finland has officially remained silent. While many countries near Finland like Estonia and Sweden among other European nations have officially publicly criticized the actions of China. (Jyrki Kallio)

Also, in the case of Finland having to criticizing on China it has not happened directly through bilateral canals in politics, rather Finland being one of many countries criticizing Chinese activities for example in EU or other international organizations or through a group of countries. This can be exemplified by Finland being one of 22 countries that criticized China over its Abuse over Uighurs in July 2019, but the Finnish government did not act on its own. (Nadda Osman)

Many times, this Finnish emphasis of doing foreign policy of cautions, can be exemplified that Finland in case of China did trade with it both following the UN embargo on trade after the Korean war. Additionally, high level Finnish politicians still visited China in fall 1989 after the Tianmen incident with the Minister of Foreign trade being the first one to visit China following the incident. With Finnish emphasis of keeping good relations to keep the commercial interests of trade and investments intact. (Erja Kettunen Jyrki Lintunen, Wei Lu, Riitta Kosonen)

On the other hand, Finland has total tolerance for privet individuals and non-public persons criticizing Chinese activities. This can be exemplified by demonstration against Chinese politicians as well as Finland's

press writing critical articles about China, activists spreading information about political sensitive material in Finland and so on. Furthermore, Chinese human rights and other violations are written and described in the Finnish media, but they are rather seldom directly criticized by the political and economic elite of Finland. This lack of direct critic from the elite of Finland can be seen by China as of not direct big interference in its affairs as well as from Finish perspective to have couches foreign policy to, promote Finnish economic and trade relations instead of being a champion on human rights, and as such balance more economic interest against human rights. (Helsinki Times, Yle)

Also, Finland has tried to block with Sweden the EU regulation that would ban sale of telecom equipment to use against human rights surveillance in the EU commission. This as to keep it allowed to sale of Finnish telecom and other surveillance equipment to countries where it might be used against its citizens, for example Nokia and Eriksson has sold telecom equipment to China which can be used as surveillance equipment on personal citizens, like very much of telecom equipment around the world. (Adam Smith)

These different activities to both promote human rights and minority rights as well as to promote good trade relationship with China, has been a balance in the Finnish politics and it can be mostly seen, that Finland, in long run has preferred to do business with nearly all countries in the world regards of their political positions, and human right abuse, with good example of long history of trade with Russia and Soviet union and continuation of the former republics of Soviets, which are in many case governed by dictators. Furthermore, Finland politicians and business community take low profile in political sensitive topics as Finland is one of the countries with over 11 billion of investments in China as well as bad political decisions might hurt Finnish economical and business interests with China. (FBCS)

In the case of political view recently both the Chinese president and Finnish president of Sauli Niinistö have been visiting each other countries. Last time was in middle of January of 2019, when Finnish president visited Beijing to meet Xi Jinping. Also, Chinese president Xi Jinping visited Finland in April of 2017, when he visited Helsinki, indicating that political relations between the countries have been on a good level if not even better level in the recent times. This for example in case of Finnish presidents Sauli Niinistö's visit to China in January 2019, was written in very positive manner in the Chinese press covering the visit. In the visit Finland and China Signed operational agreements, to enhance bilateral ties as well as developing commercial interests and business opportunities between the two countries. (Xinhua, Global times)

In the Visit of Xi Jinping in Finland in April of 2017 there was also a Joint declaration issued with 17 different points to improve the relationship between the countries. In the first five points of the declaration mutual respects and keeping up of good political relations was strongly mentioned. It also mentioned of have high level political visits, following the international law as well as giving visas and other issues related to trade smoothly. In this declaration more of economic and trade development of ITC, Green tech and paper

sectors where mentioned as co-operative sectors. Furthermore, it encouraged to have cultural exchanges, education and tourism between the countries. Moreover, it mentioned Finland to cooperate with China to improve its winters sports for the Olympics of 2022. This had later implication that after the meeting there was both opened a visa center in Finland, many Finnish companies and persons got deals regarding the Winter Olympic games as well as more deals were done in energy and paper sectors. (President of Finland Sauli Niinistö)

The first higher level visits that occurred between the two countries are the visits of Chinese Prime Minister Geng Biao in 1979, Followed by Finnish visits of Foreign Minister Paavo Väyrynen in 1984 to China, Finnish Prime minister Kalevi Sorsa in 1986 and Finnish President Mauno Koivisto in 1988. (Finnish embassy In Beijing)

Other presidential visits that has been occurring between the two countries include visits of Chinese president Jiang Zemin to Finland in 1995, Finnish President Martti Ahtisaaris visits to China in 1996, 1997 and in 1999. Also, president Tarja Halonen visited China as president of Finland in the years of 2002, 2007, 2008 and 2010. Similarly, Finnish president Sauli Niinistö visited China first in 2013 but also the last visit of 2019, while Chinese president Xi Jingping visited Finland in 2017. (Finnish embassy In Beijing)

Also there has been lower ministerial visits between Finland and China usually to help to promote trade deals as well as signing contracts between the two parties regarding investments and other co-operational agreements as well as promote relations with the countries. For example, due to ministerial visits many trade deals are started to draw up and companies get rights to due deals with China. One example is the visit of Agricultural and Foreign Minister of Finland Jari Leppänen in May 2018, with result of successfully promoting increased export of Finnish agricultural and Forest products to China, with guaranteeing licences for new categories of agricultural exports. (Valtioneuvosto)

Other ministerial meeting between China and Finland has included the visits of Housing, Minster of Energy and environmental Kimmo Tiilikainen visit to China in September 2018 when A co-operational agreement concerning utilization of renewable energy sources, management of energy demand and promotion of clean heating solutions was signed. (Valtioneuvosto)

Furthermore, Minister for Foreign Trade and Development Anne-Mari Virolainen visited China in November 2018 to promote Finnish companies' products and visit Chinese Minister of Water E Jingpingin and attended an export conference fare to promote Finnish exports. Additionally, Finnish Minister of Law Antti Häkkänen also went to China in January 2018 to promote co-operation in the legal field between the countries. He also met Chinese Minister of Law Zhang Jun to discuss rule of law and co-operation on the topic. (Valtioneuvosto, Oikeusministeriö)

In total there are usually around 5 ministerial level visits between the countries in the last years, companied by trade delegations of other officials, to improve the relations between the two countries, as well as open up trade deals for Finnish companies. (Finnish embassy In Beijing)

The meetings with different levels of politicians and government officials can be seen important to open up trade relations as China is a country where getting licenses are often linked with political approval from the Chinese government, regarding export licenses, setting up factories and public deals. This can be for example on a lower level of Twin towns where a Finnish city is a twin town to a city of China. This can be exemplified with Helsinki being a Twin City to Beijing, Hyvinkää to Kunshan, Espoo to Shanghai and so on. For example, in case of Hyvinkää and Kunshan the twin cities are Chosen as both have a big factory by Kone, elevators and thus political and governmental events, helps the doing of business between the two cities. (Mari Manninen, 2019)

Also this twin sister cities/towns can be seen to open up treading opportunities for the Finnish smaller and medium sized companies in China as often during travel by the government officials, from the towns trade representatives also accompanies the delegation making trade deals easier to make as well as get important connections to local government officials, when it is important part of the business life in China to have government connections and approvals, to get investments and trade deals done. Furthermore this approach can also be seen to be very important as in China to make business aboard it is usually made more on the top, in which sectors to invest and who does it, often by state official or high ranking government companies, leding to emphasis political connections between the two countries more than doing business in western world where decisions are made more on a grass root company level. (Mari Manninen, 2019), (Santa Stopniece, 2015)

Often in these last year's talks have been on promotion on commercial interests. Sectors that have so far been included lastly has been winter sports, cultural exchange, tourism as well as other manufacturing and technology sectors. Also, China has shown interest for Finnish know how in clean tech, digitalization and energy know how. For example, in tourism sector Finland is the biggest destination for Chinese tourists in the Nordics in 2018, with massive growth happening in the last ten years of many doubling the tourist arriving to Finland from China. (Global times, Kauppalehti, The diplomat)

Also, this sector is one sector which is also expected to grow still in the future as more and more Chinese travels aboard and Finland can offer some special experience of northern light and snow aboard, Finnish nature and exotic travel from their perspective. Additionally, Finland's Helsinki Vantaa airport also is an important hub for passengers coming from China and other East Asian countries when traveling to Europe. (Global times, Kauppalehti)

Furthermore, Finland also has directly raw material sectors providing resources for the growing Chinese manufacturing and consumer markets, including sectors of minerals and especially the woods and paper and pulp sector where Finland has big knowhow in and raw materials from where to produce paper and other products out of wood. Other important sectors of development for corporation has been the educational sectors of exporting Finnish knowledge of it aboard to China as well as having Chinese teachers and other persons to come and learn about the Finnish educational system and the way to teach here. (Global times, Kauppalehti)

Moreover, recently as China has been keeping strong interest for its own projects of one belt one road initiative, as well as more interest in the artic region and as opening up it as a trade route, and has expressed interest to make investments in infrastructure in Finland as part of it for as have been the actual case of proposing the building of a tunnel between Helsinki and Tallinn where a Chinese consortium is backing the investment in one option, backed by privet initiative of Peter Vesterbacka. While there is also the option of a Finnish Estonian EU project for the tunnel. Furthermore, this tunnel is still not expected to be realized in the close years because the building of the rail Baltic has not yet started and is a crucial part for the investment decision of the tunnel. (Global times, Kauppalehti)

To add to this China has in the recent years shown more and more interest to the Artic region, and the possible opening of the north passage during the summer half for shipping. Leading to China to also show interest in investing of the building up of a railway connection through North Finland the Norway Kirkenes to be able to shorten the transportation of Chinese goods by North passage route by rail directly to Europe. (Yle, Global times, Xinhua, ETLA, Kauppalehti)

4.5 Political relationship affecting the Finland-China trade EU and other international

In case of EU and international relationship EU and China has had a trade agreement since the year of 1985 when they signed the EU-China Trade and Cooperation Agreement. Since then the trade relationship has gone up and down partly depending the political sector. After this agreement China and EU has been making bilateral trade dialogues in different areas since the 1990s. In the year of 2001 China accessed the WTO, by support from the EU, but did not gain Market economy status neither by the US or EU and it was postponed up until 2016 and is still in different courts as US and to some extent EU, tries to dine that access to China. (Boden, Graham, 2012)

Considering problems in the relationship between the two areas it can be noted that there are direct political problems with the areas as partly gone through down below as well as individual problems with China and specific member countries. EU as an area is in general less critical than the counterparty of US with its relations with, China as well as individual countries have own different opinions how to handle the political relations with it.

For example, in 1990s begging following the crush of the Tiananmen protests EU took part in the arms embargo against China, as well as canceled all high loans and meeting with China. The arms embargo still remains in place after nearly 30 years of the incident. After this EU has as a block been mostly responsible for setting the tariffs and other regulatory standards on Chinese imports, as well as is an important player concerning future and current agreements especially related to trade, investments and economics between the areas.

EU and China have also during the period of last 30 years had some problems regarding trade. Firstly, still as the trade balance remains still negative between the two trading blocs this has ability to create frictions of not letting European companies export big amounts to get the trade deficit down. This can for example seen as big taxation and tariffs of imports of foreign luxury goods and vehicles into China, negatively affecting the ability for EU countries to reduce their trade deficit with China.

Also, there has been some anti-dumping cases of Chinese goods into the European market, of steel, solar panels as well as electric bikes struggling the relations between the two trading blocks. Many of these cases like solar panels as well as steel tariffs on Chinese exports to the EU has come from cases in which the European union believe China has been giving subsides, benefitable treatments, state aid and other cheap loans to its government or domestic companies leading to over production. This then has led to under cutting in the international trade and destruction of production in the European markets. (Jorge Valero, 2019)

Furthermore, in many cases the European companies and governments blame China from not opening up its markets for competition for the foreign companies, which has some through in it as many sectors in the economy like infrastructure, utilities, telecoms most of the financial sector as well as others remains closed or strongly regulated from competition and market access for foreign companies. China has also on its own parts views that many of the foreign sectors in the EU also remains closed for its investment and trade and this, can be seen to increase in the last years, partly due to security concerns. (Jorge Valero, 2019)

On the other hand, many of the strategies or policies of racing tariffs or making other hinders in trade can have direct consequences, regarding EU and China trade with tit-for tat responses where the other partner responds to a rise in tariffs for its goods with a rise on some import good from the destination country or by other way hinders or complicates the trade relations with the countries. (Electrek, 2019)

EU has so far not been very interesting to use tit for tat trade strategies with China, but the US and China has been using this method during the current trade war between the countries, with US first rising the tariffs and China responding to this with a tariff increase to counter the tariffs of US and to a long run expected to lead to a trade war where trade is reduced between the countries, and in most times both parties loose, and the countries' economies disintegrate from each other's.

In case of EU and China the tit- for tat strategy was in a case used by China against the European wines when it started an investigation in them following the introduction of tariffs on solar panels from china in 2013 and 2014 but it did not escalate into an out blown long term conflict as the current trade war between China and the USA. In many cases the EU China disputes have so far only targeted small amounts of the bilateral trade and have been only restricted to some sectors, where the commission has believed China has done some dumping of production or used unfair trade policies. The response from China has usually been put to around the economical size of the conflicts, meaning that the overall trade has not been widely hurt as the hinders, of tariffs and other measures contribute to a less than one percentage of the overall trade so far. Leading to EU-China trade frictions remained under the critical threshold of jeopardizing overall and mutually profitable trade developments. (New Europe)

Furthermore, China as a country has been well using the tit for tat strategy to punish countries who do not behave according well against it. This was the case for example of South Korea when it implemented the THAD antimissile system with an opportunity to spy into the China by its radar. China imposed after these tariffs on South Korean imports as well as started other investigations into Korean companies following the dispute to punish South Korea economically for an act which it saw against it. Other, not all economical tit for tat strategies include the arrest of Canadians following arrest of Huawei's CFO Meng Wanzhou in Canda. Also, the giving of the Nobel price to Liu Xiaobo created problems in short term for trade on Norway as well as froze the political relationship for 6 years between Norway and China. (The diplomat), (Jina Kim, 2019)

Also, in case of political problems that might hinder the trade relations if escalated are the Issue of Taiwan by China as well as Chinas dislike in EU interfering in its internal affairs especially concerning human rights and the rights of free speech. In the last policy paper on the European Union, it clearly states that it wants the European union to peacefully support the unification on mainland China and Taiwan, not do any official political connection with Taiwan, as well as remain from selling weapons to Taiwan. Also, in case of the Special administrative Macao and Hong Kong the European union should see them as internal parts of China and remain from interfering in their affairs as they are considered part of Chinas internal affairs.

Furthermore Tibet, is according to China part of its territory and politicians and government officials should recognize this and remain from having connections with Dali Lama. Also, it future discourage activities relating to separatism in the Xinjiang and other minority regions in China. These are usually seen as potential issues that can just come up to flame and more of sudden worse the relations between the two trading areas. (Xinhua, China's policy paper on the European Union, 2018)

In case of the trade activates in the policy document China has as an aim to reach an investment treaty with the EU, start to make a study of a possible free trade agreement with the two areas. Additionally, it aims to impro the connection to the European Union by the "One belt one road" initiative, improve the stability in the global Financial markets as well as internationalize the RMB more, and develop the Financial markets. It also aims to improve the IPR: s (Intellectual property right) as well as facilitate better following of WTO rules for trade. (Xinhua, China's policy paper on the European Union, 2018)

Also, China has as its own interest at the moment not to drive itself in a corner having many trade disputes going on with is major export destinations, while there is going on a trade war between USA and wants to balance it trade with the EU as the block is the biggest trading partner to it, and as such have after the trade war started even lowered many tariffs for goods imported from EU. Also, in case of trade balance China is exporting more goods to EU, making the trade balance negative to EU, but not nearly on a same level as it is with the American trade. (Keegan Elmer, 2019)

There has also been estimates that EU could be a winner in the trade war between US and China as this makes the EU countries able to export goods to both of them which previously had come from bilateral trade between China and US and as such be a positive thing for EU trade as long as the tariffs and trade war dose not hurt to much the demand in general for products produced in the EU. (Ashutosh Pandey, 2019)

4.6 Investments between countries

In regarding of the investments between China and Finnish Companies have made big investments in China up to 11 billion of euros and having over 60000 employees hired there. China is the third biggest market for Finnish companies After Sweden and USA as of 2015 with a Turnover of 10 billion euros. Big Finnish companies currently present include elevator manufacture Kone, Paper and pulp companies of Stora Enso and UPM, Telcom equipment manufacturer Nokia, Kemira, Wärtsilä, Metso among other up to over 350 SME. These investments to China have, been made both for the export demand as well as in regards of entering the Chinese markets. The direct investments into China continued to grow up until 2010 when Nokia sold it mobile phone manufacturing to Microsoft, reducing the total capital invested by Finnish companies a lot to China, but still it was around 11 billion of euros by end of 2018.

On the other hand, it has been recently seen that Chinese companies have been showing more interest in investing in Finland. As of 2017 there are currently 84 Chinese companies (Companies with end owner of Chinese parent company) with premises in Finland, growing with 11 in the year of 2017. Finland is also the fifth biggest country of Chinese end investments as of the year 2017, just behind, Germany, France UK and Italy. Meaning that Finland get a proportionally high share of Chinese investment compared to its size of GDP. The growth of Chinese investments can be exemplified by the recent buy out of Supercell by Tencent, Amer Sports being in process of buyout by Anta sports as well as a big interest for investments in the biofuel and pulp sectors in Finland, which has not yet materialized in real investments. Additionally, Chinese companies have been interested in buying up high technology companies as the recent offer to buy out Salcomp by Lingyi iTech. (Bloomberg, ETLA, FBCS, Kauppalehti)

In Finland there has been seen some limited critics of investments of the Chinese companies in Finish market due to security concern, but so far, the sectors where the big investments have been made by Chinese corporations due not directly relate the strategic sectors of infrastructure, telecom, utilities or defense sectors, which are more of concerns of national perspective. This critic can be seen as happening in more of the proposed Chinese investments of the Tunnel between Helsinki and Tallinn, where there more critical views about financing and letting Chinese companies and bond holders control parts of important infrastructure of Finland. For example, the Estonian Prime minister Juri Ratas raised some concerns about it and it had not been seen without a concern even in Finland. (Reuters)

4.7 Infrastructure between the two countries and EU

Also, in the case of infrastructure investments China has shown strong interest in supporting and investing in building the tunnel link between Helsinki and Tallinn among other infrastructures supporting it's One belt One road initiative, an important strategy for China to better be able to transferee its good west as well as find trade roots that are not, bookable by the US military. This can also be partly seen as interest in expanding the Finnish Rail network even to the North Sea and from there down to Central Europe. This project of the tunnel from Estonia Tallinn to Helsinki in Finland could be seen as part of Chinas first investments related to the One belt one road initiative if it gets building permits to do so, as well as possible building a connection to the North Sea to shorten shipments to Central Europe when the North Sea passage opens more for use due to climate warning. (ETLA, Kauppalehti, Golbal times, Xinhua)

Also, China wants to improve the Eurasian rail way connections between the two countries and China and Europe, where it sees Finland as a good partner for having rail transportations between the two countries.

For example, the first direct cargo train connection between the two countries was opened in 2017 with a direct connection of Kouvola in Finland with Xian in China. Which reduced the transportation time to just ten days to two weeks for cargos going to China. (Kauppalehti, Xinhua, Yle), (Jacob Mardell, 2019)

China is building also other rail roads and connections west to other European countries as part of its one belt one road initiative, and most often subsidizing the construction of them by different sort of policies as it sees being able to transport goods to the west avoiding US controlled trade routes as important part of its own security policy does subsidizing and giving funds in construction of the rail links connecting China and Europe. (Jacob Mardell, 2019)

5 Data for the econometrical research

The data for the linear regression analysis consists of GDP data both for Finland and China, Electricity generation data for both countries. It also has as the main regressed parameter the trade flow data which is to see how much trade is done between the countries and is a sum of Import and exports for the trade. Additionally, WTO access of China is also used in the models as a dummy variable to see how its effect has on trade.

5.1 GDP of the countries

The GDP data for the countries has been taken by nominal GDP from the World bank data, and after this it has been natural logarithmic down to be used in the models. GDP as an estimator is a good source to describe the size of an economy and as such can be used to estimate the size of the economy. Also, it has been used on nominal terms as the country's trade on the international market where the price level is dependent on world market prices and as such nominal GDP better describes the size of the economy in trade on the global markets. The GDP data is yearly data that has been made naturally logarithmic to be used in the models. There was found data for the years of 1978-2017 for the use in the econometric regression models. (World Bank)

5.2 Trade Flow

The data for trade flow has been taken from Finnish customs data and from this the data for trade flow with China has been taken, to be used as a base for the econometrical modelling. The data taken is yearly trade data of exports and imports and combined to represent the trade flow between the countries. It is calculated in the model so that import and export of goods is calculated together where after it is made naturally logarithmic to be used as the data for the model. The trade flow data is yearly data with time frame used as 1978-2017 for the Model with GDP as well as 1985-2017 in case of the model with electricity generation. Also import and export data naturally logarithmic is used for models only for Finnish imports and exports also coming from the Finnish customs data. These models have used with GDP data for period of 1978-2017 (Tulli)

5.3 WTO access for China

WTO access for China has been used in the last models to describe Finnish imports and exports depending on GDP and China's access to WTO. The parameter is a dummy variable receiving a value of 1 after the year of 2001 when China entered the WTO and a Value of 0 before that time. The WTO access is chosen as it is the most important trade agreement that China has signed under the last 40 years, following its opening up policies, and us such is expected to have a positive effect on the trade flow between the two trading partners.

5.4 Electricity Consumption as proxy for GDP

There is also done a study of electricity been replacing GDP as Chinese GDP data is not always totally reliable. Often in previous studies it is said that Chinese GDP is smoothed down by the government, so the real data dose not totally tell the thought of the economic activity. In case of electricity data BP-statistics data of yearly generation of electricity has been used to comply as TWH per annum and then made natural logarithmic for the econometric analysis. Also, in previous studies done of energy or electricity consumption and GDP it was shown that increase in GDP is strongly correlated with electricity consumption increase. In case of the time frame used for electricity generation it was found data for the years of 1985-2017, which have been used as naturally logarithmic in the model. Also, the timeline is chosen to start from 1985 as there was only found data for the period following this and not 1978 as for other econometric studies done in this thesis. (Chen S, Kuo H, Chen C, 2017), (Kankesu Jayanthakumaran, Reetu Verma and Ying Liu, 2012), (Muhammad Shahbaz, 2013), (BP-statistics,)

6 Methods

In this thesis the econometric methods to make reaches about the subject has been a linear regression analysis, between the countries. The linear regression analysis has two different ordinary least square estimations between the estimated variables and a constant ∝and β: ass the regression parameters on the models of the classical gravitation model. Also, as the distance between China and Finland has stayed constant over the time and does it is not put in as an own estimator parameter as the modelling is done over time not between different countries as if done in some studies of the gravitation model of trade. Furthermore, t-tests of coefficent significance as well as F-test for model significant has been done to see on what level the models are significant on an overall level. All the econometric and statistical analysis have been done using Gretl software for statistical analysis.

Also, there has been done two models on import and exports from Finland and China with a WTO dummy parameter and GDP to see what effect the entrance to WTO has had on the trade relationship statistically. The findings of these two models have as parameter the exports from on country dependent on GDP of the other and the WTO accesses of China as a dummy parameter with a value of zero before 2001 and 1 after 2001. In these models the GDP was found to be significant parameter for all models while WTO only in case of Chinese exports of Finnish imports.

6.1 The regression models

Regression models are models where relationship between variables are estimated. It includes many different categories of regression models of no-linear, stochastic, and the simplest ones of linear regression models. In this thesis the simple linear regression models have been used to estimate the variable relationships, between trade and other variables.

The simplest form of linear regression model is based on an OLS (ordinary least square estimation) where the residual squares are minimized. This can be done through a derivation of the matrix This is done so that the square of the error terms is calculated together gets the minimum value by the unknown estimated parameters β. The linear regression models usually have the form of $Y = \mathrm{X}\beta + \varepsilon$ where Y is the dependent know variable vector and X are known variables matrixes and β a vector with the estimated parameters and ε the error term vector. From this estimation of parameters β different conclusions regarding the parameters can be drawn to predict relationship between the two or more variables been drawn up. After this T-test and F-test are done to see whether the models have any statistical significance. In case of F-models all models show statistical significance, but this is not always the case for all parameters tested un t-test. (Verbeek Marno, 2000)

All the linear regression models, other statistical models and tests have been done by using statistical software of Gretel.

6.2 The Model between GDP and trade flow between China and Finland.

In case of modelling the role of how the GDP have been affecting the growth of trade the model under has been estimated to see how trade flow between the countries has been affected by the Chinese and Finnish GDP. In the model the natural logarithm of trade flow F has been regressed against a constant $\propto_2$ (which includes both the original constant as well as distance between China and Finland $\beta_{Distans}(Ln(D_{China\ Finland})$ as it has been the same during the whole period) and the natural logarithm of the GDP for Finland and China as well as ε describes the error term. In this model the period of the years between 1978-2017 has been used for estimation of the different regression's parameters of β. If the values of β are positive and statistically significant it would indicate that increased GDP would result in increased trade between the countries.

$$Ln(F_{Trade\ flow}) = \propto_1 + \beta_{GDP\ Finland}(Ln(GDP_{Finland})$$

$$+\beta_{GDP\ china}(Ln(GDP_{China}) - \beta_{Distans}(Ln(D_{China\ Finland}) + \varepsilon$$

$$Ln(F_{Trade\ flow}) = \propto_2 (\propto_1 - \beta_{Distans}(Ln(D_{China\ Finland}))$$

$$+\beta_{GDP\ Finland}(Ln(GDP_{Finland}) + \beta_{GDP\ china}(Ln(GDP_{China}) + \varepsilon$$

6.3 The Model between electricity generation and trade flow between China and Finland.

In case of modelling the role of how the electricity generation have been affecting the growth of trade the model under has been estimated to see how trade flow between the countries has been affected by the Chinese and Finnish electricity by year. In the model the natural logarithm of trade flow F has been regressed against a constant $\propto$ and the natural logarithm of the electricity generation for Finland and China as well as ε describes the error term. In the model the time period of 1985-2017 is chosen as there is only electricity generation data available for the time after and year 1985. If the values of parameter β are positive and statistically significant it would indicate that increased electricity generation would result in increased trade between the countries.

$$Ln(F_{Trade\ flow}) = \propto_1 + \beta_{Electricty\ Fin}(Ln(Electricty_{Finland})$$

$$+\beta_{Electricty\ Ch}(Ln(Electricty_{China}) - \beta_{Distans}(Ln(D_{China\ Finland}) + \varepsilon$$

$$Ln(F_{Trade\ flow}) = \propto_2 (\propto_1 - \beta_{Distans}(Ln(D_{China\ Finland}))$$

$$+\beta_{Electricty\ Fin}(Ln(Electricty_{Finland}) + \beta_{Electricty\ Ch}(Ln(Electricty_{China}) + \varepsilon$$

6.4 The Model between Finnish imports Finnish GDP and China WTO

In case of the model between Finnish imports Finnish GDP and China in WTO. Finnish imports $F_{Finnish\ imports}$ logarithmic has been regressed against a constant $\propto_1$ and logarithmic Finnish GDP $GDP_{Finland}$ and China in WTO as a dummy variable with values of 0 and 1 depending on China being a WTO member $\delta_{China\ WTO}$. The time period of the data has been years 1978-2017. In this the point is to see if the Chinese WTO access has had positive impact on Finnish imports from China as well as the expected GDP of Finland.

$$Ln(F_{Finnish\ imports}) = \propto_1 + \beta_{GDP\ Finland}(Ln(GDP_{Finland}) + \delta_{China\ WTO} + \varepsilon$$

6.5 The Model between Finnish exports Chinese GDP and China WTO

In case of the model between Finnish exports Chinese GDP and China in WTO. Finnish exports $F_{Finnish\ exports}$ logarithmic has been regressed against a constant $\propto_1$ and logarithmic Chinese GDP GDP_{China} and China in WTO as a dummy variable with values of 0 and 1 depending on China being a WTO member $\delta_{China\ WTO}$. The time period of the data has been years 1978-2017. In this the point is to see if the Chinese WTO access has had positive impact on Finnish exports to China as well as the expected GDP of China.

$$Ln(F_{Finnish\ exports}) = \propto_1 + \beta_{GDP\ China}(Ln(GDP_{China}) + \delta_{China\ WTO} + \varepsilon$$

7 Results of the econometric study

In the econometric study it can be seen that both regressions used to estimate the trade flow has been statistically significant, with very high explanatory power in R-squared being over 90% in all cases. Furthermore, the econometric results produce all statistical and significant models according to the gravitational model of trade. With the clear indication that GDP as well as electricity as its approximation contributes to the growth in the trade between the two countries. Furthermore, it can be seen as expected that GDP growth and size is one of the most important factors affecting the size of trade between countries. In case of Chinas access to WTO in the last two models it was seen that it is only statistically significant in the case for imports to Finland where WTO access had a positive overall effect on trade between the countries. While it was statistically insignificant for Finnish exports to China. This is an indication that WTO access especially benefited the Chinese economy and trade while in case of Finland there was no direct effects of Chinas becoming a member of the world trade organization.

7.1 Results from the trade flow against GDP

In the results of the regression of trade flows against GDP it can be noted both Chinese GDP and Finnish GDP is statistically significant positive, with the implementation being, that Growth in GDP of China or Finland has positive effect on the overall Volume of the trade between both countries. In case it can also be seen that Finnish GDP is more a dependent, for the growth. The model is in all coefficients furthermore significant under 0,1% confidence interval both for the estimated parameters as well as for the model as it's under the F-test for significance of model. The results of the model are totally according the expectations on the gravitational model for trade

$$Ln(F_{Trade\ flow}) = \propto_{constant}\ (\propto_1 - \beta_{Distans}(Ln(D_{China\ Finland}))$$

$$+\beta_{GDP\ Finland}(Ln(GDP_{Finland}) + \beta_{GDP\ china}(Ln(GDP_{China})$$

	Coefficient	Standard error	t-ratio
Constant	-41,07186	4,8767	-8,422
Finland GDP	1,43201	0,3153	4,541
China GDP	0,65471	0,1340	4,886
Mean dependent variance	13,72682	S.D. dependent var	1,814
Sum squared residuals	8,10163	S.E. of regression	0,468
R-squared	0,93687	Adjusted R-squared	0,933
F(2, 37)	274,52537	P-value(F)	0,000
Log-likelihood	-24,82126	Akaike criterion	55,643
Schwarz criterion	60,70916	Hannan-Quinn	57,474
rho	0,85676	Durbin-Watson	0,295

Table 1 Results from OLS regression of trade flow against GDP

7.2 Results from the trade flow against electricity

When looking at the regression result of electricity and trade flow between the countries it can be seen that all the parameters are statistically significant. The model by itself is very explanatory by having coefficient of determination R-squared being over 98% meaning that the model can explain over 98% of the variation in the trade flow by only looking at electricity generations of the two countries and a constant to describe the trade flow. Furthermore, the coefficients of electricity production are both positive and statistically significant. This has the interpretation that if there is growth in electricity production in either of the countries the trade between the countries will grow. Which clearly indicates that the bilateral trade is closely linked to GDP and manufacturing as electricity is a big input in production of many goods for trade, especially in the case that both countries have a big manufacturing industrial sectors.

$$Ln(F_{Trade\ flow}) = \propto_{constant}\ (\propto_1 - \beta_{Distans}(Ln(D_{China\ Finland}))$$

$$+\beta_{Electricty\ Fin}(Ln(Electricty_{Finland}) + \beta_{Electricty\ Ch}(Ln(Electricty_{China})$$

	Coefficient	Standard error	t-ratio
const	-7,9920	1,1264	-7,0952
Electricity Finland	3,3089	0,3319	9,9710
Electricity China	1,1255	0,0583	19,3070
Mean dependent var	14,3032	S.D. dependent var	1,4224
Sum squared residuals	1,2279	S.E. of regression	0,2023
R-squared	0,9810	Adjusted R-squared	0,9798
F(2,30)	775,9799	P-value(F)	0,0000
Log-likelihood	7,4805	Akaike criterion	-8,9610
Schwarz criterion	-4,4715	Hannan-Quinn	-7,4505
rho	0,3795	Durbin-Watson	1,2126

Table 2 Result from OLS regression of trade flow and electricity

7.3 Result between Finnish imports Finnish GDP and China WTO

In this model it was seen that both GDP of Finland as well as Chinas access to WTO. In this case it was seen that accesses of China into WTO were proves statistically significant as well as the size of the GDP of Finland. Meaning that by economical pretention that WTO access as well as growth in Finland's GDP had a positive effect on the overall imports to Finland from China. The WTO access is by itself is statistically significant under 5% level even on 2% level but not under 1% level meaning that under 98% confidence interval, the WTO access has had a positive effect of Chinese exports to Finland, but the more explaining factor for this is the growth in GDP in Finland, but we could draw a conclusion that WTO access most likely with statistical interpretation more than 98% chance that is the case.

$$Ln(F_{Finnish\ imports}) = \propto_1 + \beta_{GDP\ Finland}(Ln(GDP_{Finland}) + \delta_{China\ \ WTO}$$

	Coefficient	Standard error	t-ratio	p-value
Constant	−57.8523	5.72463	−10.11	3.44E-12
China WTO access	0.71219	0.276076	2.58	0.014
Finland GDP	2.7577	0.227186	12.14	1.81E-14
Mean dependent varible	12.98378	Standard deviation of dependent variable	2.197	
Sum squared residuals	9.683554	S.E. of regression	0.51158	
R-squared	0.939131	Adjusted R-square	0.9358	
F(2, 37)	285.4313	P-value(F)	2.50E-22	

Table 3 Result between Finnish imports Finnish GDP and China WTO

7.4 Result between Finnish exports, Chinese GDP and China WTO

In this model it was seen that only Chinese GDP had a positive statistical effect of Finnish exports to China while, Chinas access to WTO was statistically insignificant. In this case it was seen that accesses of China into WTO did not statistically affect Finnish exports to China. While the size of Chinese GDP had a positive effect on Finnish exports there. This could indicate that WTO access proven to be more beneficial for Chinese exports rather not so important for the imports to China. This could indicate that the access still to Chinese markets are rather restricted as well as the fact that much of the western and other developed countries companies used China as a manufacturing base for their exports of the goods and products to the west.

$$Ln(F_{Finnish\ exports}) = \propto_1 + \beta_{GDP\ China}(Ln(GDP_{China}) + \delta_{China\ WTO}$$

	Coefficient	Standard error	t-ratio	p-value
Constant	−20.3532	3.6278	−5.610	2.12E-06
China WTO access	−0.394966	0.387735	−1.019	0.315
China GDP	1.20857	0.135579	8.914	9.55E-11
Mean dependent varible	13.01693	S.D. dependent var	1.648662	1.648662
Sum squared residuals	12.70537	S.E. of regression	0.585993	0.585993
R-squared	0.880144	Adjusted R-sq	0.873665	0.873665
F(2, 37)	135.852	P-value(F)	9.02E-18	9.02E-18

Table 4 Result between Finnish exports, Chinese GDP and China WTO access

7.5 The correlation Matrix

In the correlation Matrix of the data it can be seen that China's GDP and electricity is more strongly correlated with the trade flow by meaning that the Chinese economic growth is the driving factor of trade between the countries while Finnish GDP growth is not that strongly related to the trade flow between China and Finland. It can also see that all regressed factors are strongly correlated with each other's as well as China is more strongly linked with the trade growth with bigger correlation than the case of Finland.

Total Trade	China GDP	Finland GDP	Electricty China	Electricty Finland	
1	0.9405	0.8965	0.9582	0.8634	Total Trade
0.9405	1	0.9124	0.9942	0.6733	China GDP
0.8965	0.9124	1	0.9342	0.7171	Finland GDP
0.9582	0.9942	0.9342	1	0.7192	Electricty China
0.8634	0.6733	0.7171	0.7192	1	Electricty Finland

Table 5 Correlation Matrix Between regressed parameters

8 Analysis of non-econometrical factors effecting the trade between the countries

8.1 Infrastructure and Chinese internal policies

When looking at the non-econometrical factors affecting trade relationship or enabling trade between the countries it can be seen, that some of the more important factors is for China the policies enabling to grow in GDP, from Deng Xiao Ping's opening reforms as well as China gaining the WTO access in 2001. The reforms in China to promote growth and trade can also see to be important factors affecting the trade relationship between the countries. China has under the last 40 year had a very dramatical growth in GDP, usually coming from the export led growth model, which has increased the trade a lot between the two countries as China became a manufacturing giant from the agricultural driven society. Furthermore, the opening up policies that China conducted had the effect that it was better able to trade with foreign countries including Finland and received new technologies and investments to improve it economy and manufacturing base.

Furthermore, the better infrastructure as well as trade routes between China and Finland have a positive effect on the trade between the countries. China has under the last 40 year remarkably improved its internal infrastructure of ports, rail, and highways, enabling it to more and more efficiently exports its products to foreign markets. Additionally, it is also part of the reason why China wants to promote its belt and road initiative. As better infrastructure and links could reduce the cost of trade between it and Finland by having cheaper and quicker direct trading routs by train or possible cargo ship between them. For example, in the last years there has been developed a direct train route for cargo between China and Finland enabling goods to be transported cost efficiently from Finland to China in two weeks from previous a couple of months with cargo ship.

8.2 Politics between the countries.

In case of Politics it can be seen in many of the Chinese newspapers recently positive comments about the Finnish China, relationship and trade. For example, in Global times, Xinhua and Kauppalehti all writes very positive articles in 2017 about the trade deals and investments made by the countries together. Also, China has rented two pandas to Finland often indication that the political relationship is in good condition as giving of Pandas is singe of good relationship and trust in the other party. (Global times, Xinhua and Kauppalehti)

Additionally, Finland has not so far upset China on any bigger way on political scale, of giving opponents or human right activist in china some special treatment or support from the governmental part. It has as a country been working behind the scene, as well as done big part of its foreign policy by pragmatism and more of no-interference in internal issues on a public governmental level, contributing to peaceful and good relationship between the two countries, and enabling it to make big export deals in sectors that would not as easily be available for trade. Additionally, Finland has had a very long trade relationship, with Communistic China from begging of 1950s, and has in many cases not followed under western pressure to cut contacts or take part in embargos against, China. For example, Finland kept political high-level connections to China just after Tianmen incident, and still has been doing trade all time regardless of the country being democratic, human rights valuations or other not political sensitive questions, mainly only following the restrictions on exports of military material to China.

Also, the Finnish politicians and business elite dose not much act or comment sensitive topics between the two countries, making it easier for Finnish companies to operate in the Chinese market. Furthermore, there has been constant travels and exchanges between different level of politicians and government official visits between the two countries to promote different trade interests between the trading partners. (Helsingin Sanomat)

Moreover, the relationship between the two countries seem to have gotten better in the late years with both visit of XI Jing Ping in April 2017, and by visit of Sauli Niinistö to China in January 2019, making future growth in trade and services very likely in the near term. Additionally, China rented two pandas to Finland for its hundred years independence celebration, underling good relations between the two countries. (Kauppalehti, Global Times, Xinhua)

8.3 Trade agreements and tariffs between the countries and EU

In case of trade agreement made WTO, EU-China as well as Finland-China investment agreement, it can be said that they all contribute to the increase in trade by lowering barriers for trade and reduce uncertainties, regarding investor rights, handling of conflicts as well as smooths the trade between the countries in standardization of trade practises and cuts red tape for trade.

Furthermore, as the two blocks are of equal size the trade agreements can be done more in same strength contributing to fairer treatment for both countries. It can be clearly also seen that the WTO access had a positive impact on trade from China to Finland, as well as lowering of barriers of trade significantly increases the opportunities for trade. Also, the entrance for Finland into EU has made the trade agreements manly to be done on a EU- China level or even on a more international level like WTO agreements. While Finland to increase trade and investment more can smooth this on bilateral trade deals, co-operation between Finland and China as well as having good political relations between the two countries.

On the other hand, still there exists some hinders of trade even in form of trade tariffs, both ways for some goods, reducing the trade potential between the two economic areas. Furthermore, China also has high taxation on some luxury goods, which are many times manufactured by European companies and as such there has been hinders for trade between EU and China two.

Also, at the current moment the trade war between US and China can be expected both to have negative and effects between the trade between the two trading areas with possibility of escalation into more a full-blown trade and currency war as worst scenario, or milder to some raises in tariffs. Also, there is possibilities that EU might benefit from trade as it can more freely trade both with China and the US without as high cost of tariffs and other red-tape hinders and take over market share from products that previously where bilateral trade between US and China.

9 Future of China Finland trade

In case of the future of Finland China trade relationship and growth in the trade it is expected to increase in size, but with a slower speed than before as, the GDP growth of both countries are much lower than they were in 1990s to 2000s. Additionally, the trade balance could be expected to grow narrower as China moves forward to a more consumer driven economic growth model rather than being just an export driven economy. With the implication that China would start to consume more of the goods produced from other parts of world including Finland. Also, when looking at expected growth in GDP for the both countries in future China has slow down its economic growth to just above 6% according it plan for 2019 and will in future expect to decline to level closer to 5% or less but may grow to even less.

When the potential for future high yearly growth is dismissing as, it has already become rich not to grow by coping but a need of innovating, meaning that more and more resources needs to be put in to contribute for future growth not just increase productivity by implanting technologies from other countries.

Furthermore, the demographics, of China will in the future become more a burden from an asset, as well as in Finland diminishing the long-term growth prospects and trade growth for both countries. This is especially actual from 2020s onwards as the big baby boomers born after the great leap in China starts to retire only to be replaced with much smaller consorts of workforce coming to the labor market. Likewise, in case of Finland the GDP growth potential is not in long term to be more than 2 % as the country ages and only reason for growth comes mainly from productivity growth.

Other positive and possible impact for increased trade between the countries are if some important trade agreements are formed between EU and China, or Finland and China, affecting the trade positively like an FTA between the areas or more realistically if the EU-China 2020 Strategic Agenda for Cooperation is signed or other forms of investment or trade agreements, with possibility to reduce the trade and investment barriers between the two trading areas.

In case of the structure of the trade it can be more expected that the low level of manufacturing and textile and other goods to be reduced in importance and share as they, are moving away from China to lower cost countries. On the other hand, imports from China can be expected to grow in its value chain to more high level and technologically advanced goods. Additionally, in case of raw material and good requiring commodities with Finland has to be stable or even growing in share as Chinese consumers can afford more for example to use paper, and the Chinese manufacturing industry still need raw materials.

Regarding the investments between countries it can be expected that direct investments would be more balanced as China catches up with the development in Finland and investing as well as exporting sectors

become also in China up in the value chain. The Chinese investment as already seen in Finland in the last years could expect to continue, even if not at the same rate in growth. For example, many Chinese companies have showed interest in investing in infrastructure, bio energy, paper and pulp sectors, as well as in other sectors.

Regarding the risk for future in trade is a normal economical risk of the trade war between mostly US and China but might develop to a full-scale trade war between different blocks and result us it in decline in trade between the countries, or as a side effect create more a world with trading blocs more protected from outside competition and trade, negatively effecting the growth prospects for trade between the countries.

Also, the current trade war between China and USA could be expected to have negative effects on the trade if it reduces the growth in China and does creates lesser opportunities for trade between Finland and China. Furthermore, also reducing demand from other indirect exports to China which goes through other countries and could affect the Finnish trade negatively with smaller trade on the global markets, risks of the trade war becoming more a global one as well as big currency devaluation of the RMB against euro leading to loss in competitiveness on the Finnish exports to China. Also, there might be part risk an opportunity that Chinese production might storm the European markets as they might not be able to sell that well to USA due to high tariffs.

On the other hand, the trade war can be also an opportunity for Finnish companies to start to export or increase exports to China, which previously where imported from USA, especially as an example of agricultural products.

Other possible risks for reduction or stagnation in trade between the countries are if some political crisis hinders the relations between the countries and does affects the trade, for example if a political crisis of for example TSAAD like in Korea happens to relations with Finland and China, it might have big negative impact on the trade between the two countries, reduce the outgoing tourism of Chinese to Finland like in the case of South Korea. It can also make the living of Finnish companies hard in China, for example Chinese people started to boycott South Korean products and Lotte company had to close the stores in China. (East Asia Forum)

10 Conclusion

To conclude it is seen that the growth in GDP is one of the most important factors affecting the size of the trade between China and Finland. The results were as expected that size of GDP reflects the size of trade between the two countries. This could be seen in all the gravitational models made regarding GDP of the countries that it is a strong contributor for the trade activities. Also, in case for electricity this was seen to be trough. Also, it is notable that the access of China into WTO had a positive effect on Chinese exports to Finland while this was not the case for directly for Finnish exports to China, where the parameter was statistically insignificant, partly due to Finland already having big presences in China due to its exports of telecom equipment there, while many Chinese products where first time able to enter Finnish market without quotas and high tariffs.

Furthermore, this is in the general view that China benefited most of the overall WTO access rather that the other countries from China's access to WTO, with the Chinese exports increasing on a much faster phase than the imports following the 5 years after the access to the WTO, with the trade surplus especially increasing during this time.

Moreover, China opening its economy for the outside world as growth in Export and GDP have been following each other's, with the Chinese strategy for growth been an export-oriented one under the time from 1980s to around 2010, where after the domestic consumption becoming a more important factor driving the growth as well as trade between China and other countries.

Additionally, China has used many of the tariff's levels more to its advantage than other countries as well as putting on luxury tax on many goods to prevent as big imports of foreign goods into the country compared to other countries, but the structure of Finnish trade of goods to China has been more non-luxury goods of raw materials paper pulp, agricultural goods and high technology electronic and manufacturing goods, not much affected by tariffs and thus it has been able to have a bigger share of goods sold to China, than just expected of the size and distance between the countries.

When looking at the structure of the trade between the countries it can be found that Finnish exports to China has changed from original being a country of High-Tech exports to China in 1990s and begging of 2002 to more a combined exporter of raw materials like wood related products and metals as well as high-tech goods.

When looking at imports from China the development in the last 20 years has been also more diversification of the different product categories that have been imported. Chinese products have been going up in the value chain to more complex ones as well as clothing, textiles and footwear have lost

shares. The electrical appliances remain biggest one but products of other categories such, but machinery and mechanical appliances has been growing in importance for the Chinese exports to Finland.

In the case of trade balance between Finland and China it can be noted it was in general positive for Finland in 1980s and 90s until China entered the WTO but became after the entrance become increasingly negative until the financial crisis of 2008 and has after that as trend been shrinking in size.

Furthermore, Finnish companies also have made big investments into China as foreign direct investments in their sectors in China and produce nowadays their products directly in China for the local market instead of the Case in 1990-ss when they primary exported still them into China, partly contributing to increased deficits in 2000s between the trade of the countries.

Also, the Chinese have started to invest in Finland since the 2010ss with big investments more buyouts in sectors of Computer games, IT and Sports equipment among others, leading to investment in Finland to reach near 10 billion of Euros by end of 2018.

Other important factors are political stability between the countries and stable relationship, with Finland over the whole period having a good relationship with the Chinese Government. This can also be exemplified by Finland trying to avoid conflicts of the major political sensitive issues. While protecting more its economic interests in China.

Mostly the Finnish Foreign policy has been non-intervention in other countries internal affairs. while it has more promoted good relations regarding, trust between the countries. As Finland's high-level politicians do not by very much criticise actions of China, regarding human rights and politically sensitive topics in China. Also, in the case it does it is usually part of a larger group of countries doing so and not on a solo basis reducing the direct critic just of Finland against China.

In case of Finnish political trade factors Finland has had a long history of doing business with no-democratic countries since, big eastern business done previously already with Soviet Union and as well as in smaller scale with China and other countries of the east bloc. Often meaning that companies have had experience how to do business with countries that are not democratic and autocratic and more corrupt in business environments. Furthermore, Finland still uses its political leaders to support the process of making trade deals during ministerial and presidential meetings.

In case of EU and China it is mostly responsible for the current direct trade policy regarding direct tariffs and many non-tariff barriers of trade, effecting the trade between Finland and China. The EU is the main partner when it comes to deal with tariffs and quotas and many other red tape barriers of trade. Big disagreements that currently hinder the trade between the areas include subsidies, given to Chinese state-owned companies, and intellectual property rights.

Many of the hinder for better trade relations and increase in trade can be seen come from trade barriers with China. These include tariffs, levelled by EU on imports according, WTO levels, Chinese tariffs on imports and luxury taxes. Some trade quotas, as well arms embargo of the EU against sale of arms to China. Furthermore, there are also other red tape barriers of trade between the trade areas, including standards, import restrictions, currency exchange restrictions and licenses.

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12 Appendix

The statistical results from the test all in details.

12.1 OLS-Models

Model 1: OLS, using observations 1978-2017 (T = 40)
Dependent variable: Ln_TOT_Trade

	Coefficient	Std. Error	t-ratio	p-value	
const	−41,0719	4,87671	−8,422	<0,0001	***
Ln_China_GDP	0,654714	0,133986	4,886	<0,0001	***
Ln_Finland_GDP	1,43201	0,315323	4,541	<0,0001	***

Mean dependent var	13,72682	S.D. dependent var	1,813931
Sum squared resid	8,101632	S.E. of regression	0,467935
R-squared	0,936866	Adjusted R-squared	0,933453
F(2, 37)	274,5254	P-value(F)	6,38e-23
Log-likelihood	−24,82126	Akaike criterion	55,64253
Schwarz criterion	60,70916	Hannan-Quinn	57,47446
rho	0,856763	Durbin-Watson	0,295446

Model 2: OLS, using observations 1978-2017 (T = 40)
Dependent variable: Ln_Export

	Coefficient	Std. Error	t-ratio	p-value	
const	−17,1665	1,83789	−9,340	<0,0001	***
Ln_China_GDP	1,08800	0,0661650	16,44	<0,0001	***

Mean dependent var	13,01693	S.D. dependent var	1,648662
Sum squared resid	13,06168	S.E. of regression	0,586284
R-squared	0,876783	Adjusted R-squared	0,873540
F(1, 38)	270,3985	P-value(F)	7,23e-19
Log-likelihood	−34,37361	Akaike criterion	72,74722
Schwarz criterion	76,12498	Hannan-Quinn	73,96851
rho	0,874111	Durbin-Watson	0,237182

Model 3: OLS, using observations 1978-2017 (T = 40)
Dependent variable: Ln_Import

	Coefficient	Std. Error	t-ratio	p-value	
const	−69,5840	3,72677	−18,67	<0,0001	***
Ln_Finland_GDP	3,22740	0,145632	22,16	<0,0001	***

Mean dependent var	12,98378	S.D. dependent var	2,019700
Sum squared resid	11,42523	S.E. of regression	0,548328
R-squared	0,928183	Adjusted R-squared	0,926293
F(1, 38)	491,1238	P-value(F)	2,47e-23
Log-likelihood	−31,69643	Akaike criterion	67,39285
Schwarz criterion	70,77061	Hannan-Quinn	68,61414
rho	0,732418	Durbin-Watson	0,532661

Model 1: OLS, using observations 1985-2017 (T = 33)
Dependent variable: Ln_TOT_Trade

	Coefficient	Std. Error	t-ratio	p-value	
const	−7,99203	1,12640	−7,095	<0,0001	***
Ln_Electricty_Finland	3,30891	0,331854	9,971	<0,0001	***
Ln_electricty_China	1,12553	0,0582963	19,31	<0,0001	***

Mean dependent var	14,30323	S.D. dependent var	1,422443
Sum squared resid	1,227851	S.E. of regression	0,202308
R-squared	0,981036	Adjusted R-squared	0,979772
F(2, 30)	775,9799	P-value(F)	1,48e-26
Log-likelihood	7,480522	Akaike criterion	−8,961044
Schwarz criterion	−4,471521	Hannan-Quinn	−7,450456
rho	0,379536	Durbin-Watson	1,212614

Model 6: OLS, using observations 1985-2017 (T = 33)
Dependent variable: Ln_Import

	Coefficient	Std. Error	t-ratio	p-value	
const	−18,7565	2,09160	−8,968	<0,0001	***
Ln_China_GDP	1,15217	0,0743368	15,50	<0,0001	***

Mean dependent var	13,62885	S.D. dependent var	1,576122
Sum squared resid	9,085685	S.E. of regression	0,541375
R-squared	0,885705	Adjusted R-squared	0,882018
F(1, 31)	240,2273	P-value(F)	3,77e-16
Log-likelihood	−25,54315	Akaike criterion	55,08630
Schwarz criterion	58,07931	Hannan-Quinn	56,09336
rho	0,857578	Durbin-Watson	0,149350

Model 4: OLS, using observations 1985-2017 (T = 33)
Dependent variable: Ln_Export

	Coefficient	Std. Error	t-ratio	p-value	
const	3,35021	0,722484	4,637	<0,0001	***
Ln_electricty_China	1,36981	0,0964995	14,19	<0,0001	***

Mean dependent var	13,53646	S.D. dependent var	1,299271
Sum squared resid	7,202654	S.E. of regression	0,482020
R-squared	0,866665	Adjusted R-squared	0,862364
F(1, 31)	201,4977	P-value(F)	4,15e-15
Log-likelihood	−21,71102	Akaike criterion	47,42203
Schwarz criterion	50,41505	Hannan-Quinn	48,42909
rho	0,870237	Durbin-Watson	0,271160

Model 3: OLS, using observations 1978-2017 (T = 40)
Dependent variable: Ln_Export

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	−20.3532	3.62780	−5.610	<0.0001	***
ChinaWTO	−0.394966	0.387735	−1.019	0.3150	
Ln_China_GDP	1.20857	0.135579	8.914	<0.0001	***

Mean dependent var	13.01693	S.D. dependent var	1.648662
Sum squared resid	12.70537	S.E. of regression	0.585993
R-squared	0.880144	Adjusted R-squared	0.873665
F(2, 37)	135.8520	P-value(F)	9.02e-18
Log-likelihood	−33.82044	Akaike criterion	73.64088
Schwarz criterion	78.70752	Hannan-Quinn	75.47282
rho	0.872648	Durbin-Watson	0.251607

Model 2: OLS, using observations 1978-2017 (T = 40)
Dependent variable: Ln_Import

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	−57.8523	5.72463	−10.11	<0.0001	***
ChinaWTO	0.712190	0.276076	2.580	0.0140	**
Ln_Finland_GDP	2.75770	0.227186	12.14	<0.0001	***

Mean dependent var	12.98378	S.D. dependent var	2.019700
Sum squared resid	9.683554	S.E. of regression	0.511583
R-squared	0.939131	Adjusted R-squared	0.935841
F(2, 37)	285.4313	P-value(F)	3.25e-23
Log-likelihood	−28.38853	Akaike criterion	62.77706
Schwarz criterion	67.84370	Hannan-Quinn	64.60900
rho	0.723823	Durbin-Watson	0.551820

12.2 Correlation Matrixes

Correlation coefficients, using the observations 1978 - 2017
5% critical value (two-tailed) = 0,3120 for n = 40

Ln_TOT_Trade	Ln_China_GDP	Ln_Finland_GDP	
1,0000	0,9496	0,9466	Ln_TOT_Trade
	1,0000	0,9191	Ln_China_GDP
		1,0000	Ln_Finland_GDP

Correlation coefficients, using the observations 1985 - 2017
5% critical value (two-tailed) = 0,3440 for n = 33

Ln_TOT_Trade	Ln_electricty_China	Ln_Electricty_Finland	
1,0000	0,9582	0,8634	Ln_TOT_Trade
	1,0000	0,7192	Ln_electricty_China
		1,0000	Ln_Electricty_Finland

Correlation coefficients, using the observations 1985 - 2017
5% critical value (two-tailed) = 0,3440 for n = 33

Ln_TOT_Trade	Ln_Import	Ln_Export	Ln_China_GDP	Ln_Finland_GDP	
1,0000	0,9924	0,9891	0,9405	0,8965	Ln_TOT_Trade
	1,0000	0,9645	0,9411	0,9296	Ln_Import
		1,0000	0,9188	0,8401	Ln_Export
			1,0000	0,9124	Ln_China_GDP
				1,0000	Ln_Finland_GDP

Ln_electricty_China	Ln_Electricty_Finland	
0,9582	0,8634	Ln_TOT_Trade
0,9649	0,8509	Ln_Import
0,9309	0,8669	Ln_Export
0,9942	0,6733	Ln_China_GDP
0,9342	0,7171	Ln_Finland_GDP
1,0000	0,7192	Ln_electricty_China
	1,0000	Ln_Electricty_Finland